NHG Practice Guideline 'Cervical smears'
See also: Addendum to the NHG Practice Guideline 'Cervical smears'
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This guideline and its scientific justification have been updated with respect to the previous version (Huisarts Wet 1989:32:473-7). The recommendations have been revised. The most significant changes are:
- Since 1-1-1996, the screening of women aged 35 to 55 at three-year intervals has been replaced by screening of women aged 30 to 60 at five-year intervals.
- Making a smear at the patient's request without a medical indication is ill-advised and should be discouraged.
- Recommendations for follow-up management are to be based on the KOPAC-B coding, as is the report sent to the general practitioner.

INTRODUCTION
The NHG Practice Guideline 'Cervical smears' provides guidance for managing the detection of cervical cancer and its precursors, within the framework of a national screening programme. There is a separate discussion of the policy for making smears on medical grounds, i.e., smears made because of symptoms associated with a higher risk of cervical cancer. Over 780,000 cervical smears are made annually in the Netherlands. It is estimated that nearly one-third of these smears are made at the woman's request, independent of the screening programme. Each year 700 new cases of cervical cancer are confirmed, half of which are in women who were never or inadequately screened.

The zone of transition from endocervix (columnar epithelium) to ectocervix (squamous epithelium) is the most common location of cervical cancer. Abnormalities in the squamous epithelium are the most prevalent, while abnormalities in the columnar epithelium and other cells are rare. The absence of abnormalities in a smear that is correctly made in a screening programme is sufficient to rule out cervical malignancy in a woman of childbearing age.

The most significant gauge for the quality of a cervical smear is the presence of endocervical cells and cells of the transition zone (squamous metaplastic cells) together with squamous cells. The cytological classification of cervical smears is based on the KOPAC coding system (see Table 1). KOPAC stands for "Kompositie, Ontstekingsverschijnselen, Plaveiselepitheel, Andere cellen, Cilinderepitheel van de endocervix" (Composition, signs of Inflammation, Squamous epithelium, Other cells, Columnar epithelium of the endocervix). A B for "Beoordeelbaarheid" (suitability for evaluation) has been added to the original KOPAC coding. A smear can be more difficult to evaluate when blood or leucocytes are present.

The following two risk indicators are significant, because they imply an elevated risk of cervical cancer and because targeted screening is possible:
- the fact that a woman was inadequately or never screened
- the presence of a cytological or histological abnormality of the cervix in the medical history

The significance of other factors—such as early onset of sexual activity, promiscuity (on the part of the patient herself or her partner), smoking, and the use of oral contraceptives—is minor or disputed. These factors are of no consequence in day-to-day practice.

Certain types of human papilloma virus (HPV) are found frequently in intraepithelial abnormalities of the cervix. Screening for this virus is not currently advised.

Table 1.
KOPAC-B coding (the 'B' refers to suitability for evaluation)
<table>
<thead>
<tr>
<th>Composition</th>
<th>Evidence of Infection</th>
<th>Squamous Epithelium</th>
<th>Other Endometrial Abnormalities</th>
<th>Columnar Epithelium of Endocervix</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>unsuitable</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>endocervix</td>
<td>viral</td>
<td>no abnormalities</td>
<td>no abnormalities</td>
</tr>
<tr>
<td>2</td>
<td>squamous metaplasia</td>
<td><em>Trichomonas vaginalis</em></td>
<td>abnormal squamous cells</td>
<td>epithelial atrophy</td>
</tr>
<tr>
<td>3</td>
<td>endometrium</td>
<td>bacterial</td>
<td>atypical squamous metaplasia</td>
<td>atypical repair response</td>
</tr>
<tr>
<td>4</td>
<td>ec + sm</td>
<td><em>Candida albicans</em></td>
<td>slight dysplasia</td>
<td>em slight atypia</td>
</tr>
<tr>
<td>5</td>
<td>ec + em</td>
<td><em>Haemophilus vaginalis</em></td>
<td>moderate dysplasia</td>
<td>em moderate atypia</td>
</tr>
<tr>
<td>6</td>
<td>sm + em</td>
<td>no inflammation</td>
<td>severe dysplasia</td>
<td>em severe atypia</td>
</tr>
<tr>
<td>7</td>
<td>ec + sm + em</td>
<td><em>Actinomyces</em></td>
<td>carcinoma in situ</td>
<td>em adenoca.</td>
</tr>
<tr>
<td>8</td>
<td>only squamous cells</td>
<td><em>Chlamydia</em></td>
<td>microinvasive carcinoma</td>
<td>metastasis of malignant tumour</td>
</tr>
<tr>
<td>9</td>
<td>n/a</td>
<td>aspecific</td>
<td>invasive carcinoma</td>
<td>n/a</td>
</tr>
</tbody>
</table>

n/a = not applicable, ec = endocervix, sm = squamous metaplasia, em = endometrium

Suitability for evaluation:
B1 = suitable
B2 = suitable but limited by [problem classification, see below]
B3 = unsuitable due to [problem classification, see below]
Problem: a = large amount of blood, b = many leucocytes, c = too few epithelial cells, d = poor fixation, e = mechanical damage, f = cytolysis, g = smear is too thick, h = too few squamous epithelial cells with many endocervical columnar cells, i = lack of endocervical columnar cells

**Reasons for revision**
Since publication of the NHG Practice Guideline 'Cervical smears' in 1989,\(^6\) there has been a change of opinion about age groups, the screening interval, cytological classification, and cervical smears made outside screening programmes. Based in part on studies of cost-effectiveness, a decision was made to broaden the age range, from 35-55 years to 30-60 years, and to prolong the screening interval from 3 to 5 years. This means that a larger target group can be reached for the same cost, without increasing the risk of missing cervical cancer.\(^7\) The effectiveness of the screening programme could be enhanced by reducing the number of cervical smears made without a medical indication and outside the screening programme, while at the same time offering cervical smears to unscreened or inadequately screened female patients visiting the
practice. The guideline has been revised to accommodate the KOPAC-B system, since that has become the coding system used for cervical smear interpretation and follow-up management. Whether the Papanicolaou classification will continue to be used in laboratory reports sent to general practitioners depends on regional cooperative arrangements. For conversion of the Pap classification system to the KOPAC-B coding system, see Table 2. Views on how to invite women for screening have also changed. The aim is to gradually introduce a system in which general practitioners themselves handle the call and recall of patients, partly because of a larger anticipated response.

Table 2. Conversion of Papanicolaou classification to KOPAC-B coding

<table>
<thead>
<tr>
<th>Pap Classification</th>
<th>KOPAC-B Coding</th>
<th>Pap Classification</th>
<th>KOPAC-B Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pap 0</td>
<td>K0 (B3)</td>
<td>Pap 3B</td>
<td>P6 C6</td>
</tr>
<tr>
<td>Pap 1</td>
<td>P1 A1-2 C1</td>
<td>Pap 4</td>
<td>P7 A6 C7</td>
</tr>
<tr>
<td>Pap 2</td>
<td>P2-3 C3</td>
<td>Pap 5</td>
<td>P8-9 A7-8 C9</td>
</tr>
<tr>
<td>Pap 3A</td>
<td>P4-5 A3-5 C4-5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DIAGNOSTIC GUIDELINES**

The starting point is the arrival of the woman at the practice, bearing an invitation for a cervical smear in the screening programme. Patients who visit the practice and qualify for screening but have never been screened or have been underscreened, are asked about the reasons for this. This also applies to women who were not adequately followed-up after a cytological abnormality of the cervix was found. Women in both categories should be advised to have a cervical smear made.

**Practical aspects**

The most common sampling devices are the Cytobrush ('the little paintbrush') used in combination with a wooden spatula, and the Cervex Brush ('the blue and white brush'). The percentage of smears without endocervical cells is about 10% nation-wide in the Netherlands. If the average percentage of unsuitable smears made by the general practitioner or the practice nurse is greater than this, the sampling technique should be improved or different sampling instruments should be used.

For adequate follow-up, the date, the reason for the smear (screening programme or medical indication), the classification of the smear results, and any recommendation for a repeat smear should be recorded. If a patient objects to having a smear made and decides not to do so after consultation, this should be noted in the medical record.

It is usual practice for the woman herself to telephone for the results 2-3 weeks after the smear is made. If she does not, it is the general practitioner's responsibility to inform her of the results only if they are alarming, such as P4 or higher (Pap 3A or higher). The woman is responsible for follow-up when the results are less troubling, such as P0, 2, or 3 (Pap 0 or 2).

Various call/recall invitation systems are possible, depending on the local or regional arrangements between the organizations involved:

- a system in which the general practitioner sends out invitations
- a system in which the municipality or the regional health authority sends out invitations
- a combination of the two

Within a few years, the general practitioner will be playing a central role in the call/recall
system and he should therefore ascertain the local or regional requirements for this. He will need a monitoring system for the call/recall invitations to insure that all women in the region who qualify for screening are contacted, and he will need a computerized system to sort patients by gender and date of birth. Recommending repeat smears and follow-up examinations will remain the responsibility of the pathology laboratory, depending on regional agreements.

Information
The general practitioner can explain that most cases of cervical cancer can be prevented or detected in time if a smear is made once every 5 years, and that prolonging the interval from 3 to 5 years does not increase the risk for the woman. A clear explanation is necessary, because examinations were previously made at 3-year intervals and will now be made at 5-year intervals in the same women. The woman should be advised to call if any vaginal symptoms develop, even if she is participating regularly in a screening programme. It should also be explained that a recommendation for a repeat smear is usually due to technical inadequacies, such as insufficient endocervical cells.  

SEE ADDENDUM Discussion of this in advance of the report may prevent feelings of panic if a repeat smear is required. It should be agreed with the woman that she herself will call for the results.

History and physical examination
The general practitioner checks whether there are reasons not to proceed with the smear:  

- there has been a radical hysterectomy in which the cervix was removed  
- the woman is undergoing gynaecological monitoring for a cervical abnormality, in which case she can be asked to bring the invitation notice to the gynaecologist  
- the woman was discharged from treatment for cervical cancer or its precursors less than 6 months ago  
- a smear was made for a medical indication less than one year ago  

If there are suspicious macroscopic abnormalities, such as an irregular, proliferative surface or ulceration of the cervix, referral is indicated and no smear should be taken. The general practitioner also checks whether there are reasons to postpone the smear:  

- the woman is pregnant or in the first 6 months postpartum  
- she is breastfeeding or in the first 6 months after the end of lactation  
- there is menstrual bleeding or withdrawal bleeding  

Bimanual vaginal palpation is not necessary, but if vaginal palpation is still justified, it should take place after the smear has been obtained. Especially if the woman is a virgin, the general practitioner should take into account her resistance to an internal examination. Hence a small speculum should be used or the woman should be requested to insert the speculum herself.

Taking the smear
The speculum should be adjusted for good macroscopic evaluation of the cervix. Any mucus or pus on the cervix should be removed with a cotton swab. The cervix is then examined and if there are no visible abnormalities or suspicious areas, the smear is taken following one of the methods described below. The smear must be fixed within a few seconds in order to prevent drying artefacts.  

Cervex Brush (the blue and white brush). The Cervex Brush is rotated 360 degrees five times in the cervical ostium. The cellular material is spread evenly and not too thickly over the glass slide and the smear is then fixed.  

Cytobrush (the 'little paintbrush'). The Cytobrush is used in combination with the wooden
spatula. The brush is rotated 360 degrees in the endocervical canal. The cellular material is applied to half of one surface of the glass slide and is then fixed, while the other half of the slide remains covered. The pointed end of the wooden spatula is then rotated at least 360 degrees in the ostium of the cervix under a constant slight pressure. If there is extensive ectropion, the outer part of the ectocervix is also scraped with the side of the pointed end of the spatula. The material on the spatula is spread on the other half of the same surface of the slide and the entire slide is placed in fixative.

GUIDELINES FOR CERVICAL SMEARS IN A SCREENING PROGRAMME
The guidelines apply to cervical smears made in a screening programme, including smears made on the general practitioner's initiative in unscreened or underscreened women.

Classification of the results and follow-up management
Suitable for evaluation (B1): see other KOPAC codes.
Suitable for evaluation but limited by e.g., many leucocytes, excessive blood, or poor fixation (B2). The smear is repeated only if justified by the other KOPAC codes. If there are no complaints, the presence of micro-organisms in a cervical smear generally has no therapeutic consequences.

Unsuitable for evaluation (B3): repeat after 6 weeks.
Signs of inflammation/infection: see other KOPAC codes.
No abnormalities (P1/A1-2/C1): repeat after 5 years.
Slight abnormalities (P2-4/A3/C3-5): repeat in 6 months. If the results of the repeat smear are normal, a third smear is obtained 12 months later. If this smear is also normal, the regular screening schedule is then followed and the next smear is made 5 years after the first abnormal smear.
Moderately severe abnormalities (P5-6/A4-6/C6): the patient is referred for further examination.
Abnormalities consistent with carcinoma in situ or invasive carcinoma (P7-9/A7-8/C7.9): the patient is referred for further examination.
No endocervical columnar cells found (C2): repeat within 6 months if the smear is otherwise normal (Pap 1), but if there are again no endocervical cells and other KOPAC codes are normal, the next smear is made 4½ years later, as scheduled in the screening programme.

SEE ADDENDUM
When an abnormal finding necessitates referral, the general practitioner notifies the woman as soon as the results have been received.

Referral
Referral to a gynaecologist is indicated for:
- slight abnormalities (P2-4/A3/C3-5) in a repeat smear, when there were also slight abnormalities in the previous smear
- moderately severe abnormalities (P5-6/A4-6/C6): the patient is referred for colposcopic examination, and treatment if necessary
- abnormalities consistent with carcinoma in situ or invasive carcinoma (P7-9/A7-8/C7, 9): the patient is referred for colposcopic examination and treatment
- a macroscopically suspect abnormality of the cervix

GUIDELINES FOR A MEDICALLY INDICATED CERVICAL SMEAR
When the following indications for a smear are present, it is assumed that diagnosis and, if necessary, treatment has taken place in accordance with the guidelines of the NHG Practice Guidelines 'Vaginal discharge' and 'Vaginal bleeding'.

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Medical indications for a smear are:\textsuperscript{17}

- contact bleeding, i.e., bleeding following intercourse or cervical bleeding that is readily provoked by physical examination
- breakthrough bleeding at varying times in the menstrual cycle, not explained by the use of oral contraceptives, vaginal or endocervical infection, or a lesion of the vulva or vagina

Other vaginal complaints or pelvic pain are usually no indications for a smear.

An appointment is made for a follow-up 6 weeks after the smear was obtained, to discuss the results and changes in the symptoms. When there are moderately severe abnormalities, such as P5 or higher, the general practitioner contacts the woman sooner.

If after 6 weeks the symptoms have disappeared, there are two possibilities:\textsuperscript{18}

- the smear is not abnormal: the woman continues on the regular screening schedule
- the smear is abnormal: management is the same as for an abnormal smear in a screening programme

If after 6 weeks the symptoms have not disappeared, the treatment policy depends not only on the results of the smear but also on the course, nature, and severity of the symptoms, the findings at physical examination, and any cytological or histological abnormality of the cervix in the medical history.\textsuperscript{18} Uniform guidelines for the management of individual patients cannot be given. If symptoms persist, referral should be considered rather than repeating the smear.

\textbf{note 1}

There were recorded 784,046 cervical smears in 1992.\textsuperscript{1} In over 14\% of these the squamous epithelium was judged to be abnormal.\textsuperscript{1} This led to early repeat examinations because of 'irritated cells' (P2) or atypical squamous dysplasia (P3) in 11\% (82,500) of the cases, and slight (P4) or moderate (P5) dysplasia in 2.5\% (18,800). Severe dysplasia (P6) was observed in 0.35\% (2,600) and carcinoma in situ (P7) in 0.14\% (1,076). In other words, no abnormalities (P1) were found in 85\% (638,000) of the cervical smears.\textsuperscript{1} Data on the exact percentage of false-negative results has not been reported, but the probability of cervical cancer or a precursor of cancer being overlooked in correctly made smears—and in the absence of macroscopically suspect abnormalities—is very small.

From a health survey it was concluded that in 1991 approximately 240,000 smears were made because women requested them and not because there were medical indications for them.\textsuperscript{2} It was estimated that (with the old call/recall schedule) at the optimistic level of 70\% participation, no more than 550,000 cervical smears per year would be necessary, including an estimated 100,000 smears for which there were indications.\textsuperscript{3}


\textbf{note 2}
Women who are never screened or are underscreened for cervical cancer comprise a clear risk group. No smear was known to have been made in 330 of the 690 women in whom cervical cancer was diagnosed in 1990 in the Netherlands.\(^1\) No smear had been made in 223 of 469 cases of cervical cancer in the greater Leiden area. Of the unscreened women, 64% were not eligible for the screening programme on the basis of age (9% were under 35 and 55% were over 55).\(^2\) Older women, in particular, appear to be underscreened.\(^2,3\) The most significant reasons for not taking part were fear of or aversion to the gynaecological examination.\(^4\) An early stage of cervical cancer in the history is the only factor that meets all of the conditions for targeted prevention.\(^5\)


note 3
The Ziekenfondsraad [Medical Insurance Board] considers the Papanicolaou classification system to be too ambiguous about follow-up. The report is based on the KOPAC coding, which provides a cytological evaluation of the squamous epithelium (P), the columnar epithelium (C), and other cells (A), graded 0 to 9. The KOPAC system also includes evaluation of the smear’s quality or composition (K) and the nature of any signs of inflammation (O).

**Uitgangspunten herstructurering bevolkingsonderzoek naar baarmoederhalskanker [Principles of restructuring the cervical cancer screening programme]. Ziekenfondsraad: Amstelveen, 1993, no. 592.**

note 4
A distinction is made among the following risk factors: smoking, contraception, promiscuity (of the woman herself or her partner), early onset of sexual activity, and human papilloma viruses. Investigation of these factors has been mainly by case-control studies. The results have sometimes been contradictory, partly because various factors, such as smoking and the prevalence of oncogenic HPV, are interrelated.\(^1\) Smoking is probably not an independent causative factor for the development of cervical cancer.\(^2\)

The WHO commissioned studies of 2,361 cases and 13,644 controls for a possible connection between oral contraceptives and invasive cancer.\(^3\) The relative risk of incurring squamous cell carcinoma of the cervix in women who had at some time used oral contraception was 1.31 (95% CI 1.12-1.53) compared with women who had never used it. Kjaer et al. found no elevated risk of cervical cancer in women who had at some time used oral contraceptives (relative risk 1.3 95% CI 0.5-3.3).\(^4\) Ursin et al. found a relationship...
between the rare cervical adenocarcinoma and the use of oral contraceptives: odds ratio 2.1 (95% CI 1.1-3.8).5 No evidence was found of an elevated risk associated with the use of DMPA (the 'injectable contraceptive'): relative risk 1.11 (95% CI 0.96-1.29).6 For women with one male partner, the role of promiscuity in the man was studied in 41 case couples and 90 control couples.7 No correlation was found between the male partner's promiscuity and the woman's development of cervical cancer, with the exception of a decreased risk when condoms were used. The significance of promiscuity in the woman was investigated in 667 patients with squamous cell carcinoma of the cervix and over 1,400 controls.8 The relative risk of cervical cancer in women with 4 or more sexual partners was 1.6 (95% CI 1.2-2.2) in comparison with women who had just 1 sexual partner. Women who began sexual activity before age 16 had a relative risk of 2.3 (95% CI 1.8-3.0) when compared to those who began at age 20 or above. It is not clear to what extent these results were corrected for other factors. In a study of the association between the severity of cervical intraepithelial abnormalities and specific risk factors, there was no correlation found with the onset of sexual activity but there was with the number of sexual partners.9 A different study found that CIN III lesions were correlated with the number of sexual partners and with the onset of sexual activity, but CIN I and II lesions were not.10

Conclusion: In view of the low absolute risk of cervical cancer, the comparatively small relative risks from the factors discussed, and occasionally contradictory research results, we can conclude that these factors are of minor importance. Measures aimed at identifying 'high' risk patients are not meaningful.


**note 5**

Human papilloma virus (HPV) is found in 80% of patients (627 out of 791) with pathological abnormalities of the cervix (intraepithelial abnormalities or cervical cancer) and in only 6% of patients (101 out of 1,566) without abnormalities.1 A distinction is made between
high-risk HPV types (16, 18) and low-risk HPV types (e.g., 6/11, 42, 43, and 44).

The low-risk HPV types 6 and 11 are associated with genital warts. The results of studies of the relationship between high-risk HPV types 16, 18, 31, 33, and 35 and the prevalence of endocervical intraepithelial neoplasia or cervical carcinoma in situ are unequivocal. Specifically, HPV type 16 is often found in such association and has the strongest connection to cervical intraepithelial neoplasia (CIN). Genital warts in women do not appear to indicate an elevated risk of genital carcinomas. HPV screening to identify patients at high risk of cervical cancer appears very promising, but is still in its infancy and is not currently being advised. Some even question whether HPV 16 is the cause of cervical neoplasia.


note 6


note 7

In 1993, De Coördinatiecommissie Baarmoederhalskankeronderzoek van de Ziekenfondsraad [the Medical Insurance Board's Coordinating Committee on Cervical Cancer Research] changed the age for screening to between 30 to 60 years and the interval to 5 years, in accordance with European guidelines. A major argument for this was that the 'old' schedule was inefficient. An analysis of cost-effectiveness suggested that call/recall systems in which women
between ages 30 and 70 are invited at intervals of 5 years or more can result in a 30% increase in the number of years of life saved and a 10% reduction in costs. Calculations also showed that screening at 5-year intervals from age 35 to 64 reduces the risk of mortality from cervical cancer by 90%. A programme with relatively few invitations per woman but with a high attendance rate is strongly preferred to an equally costly programme with more invitations but lower attendance.

It is rare for cervical cancer or its precursors to occur in women whose screening results are negative shortly before they reach age 55. The pre-invasive stages of severe dysplasia and carcinoma in situ last 12.3 years on average, with a standard deviation of 5.8 years. For cervical smears made neither in a screening programme nor on medical grounds (opportunistic screening), the distribution across age categories is poor. Half (!) of the cervical smears are made in women under 35, while priority should be given to older women, particularly those who were never screened or were inadequately screened.

If the funds for opportunistic screening were used for smears in a coordinated programme with a 65% level of participation, the health gain—in terms of years of life saved—would already be a third higher. To put it another way, the same health effect as from opportunistic screening can be achieved through a coordinated screening programme in which 65% take part. The screening programme would cost half as much and would result in at least 40% fewer unnecessary referrals and treatments. Opportunistic screening begins and ends at too low an age (when cervical abnormalities often regress spontaneously) and does not reach the groups most at risk. Raffle et al. have expressed serious doubts about the usefulness of a cervical cancer screening programme. From 1988 to 1993 in the Bristol area, 225,974 smears were made. Abnormalities were found in 15,551 smears and led to 6,000 colposcopic examinations, but this did not result in a reduction in mortality from cervical cancer (30 to 40 cases annually).

A commentary in the Lancet made the point that a decrease was also not expected, and that cervical screening may have prevented further increases in the incidence of cervical cancer. It is acknowledged that the majority of slight to moderate abnormalities give rise to many unnecessary examinations and alarm.

7. Van Ballegooijen M, Habbema, JDF, Van Oortmarssen GJ, Koopmanschap MA, Lubbe JThN, Van Agt HME. Preventive pap-smears: balancing costs, risks and

note 8
Participation in the screening programme is approximately 40%. This low percentage is explained by the fact that a smear had already been made in a significant number of women shortly before the call for screening, and that invitations are sent to some women for whom the examination is not indicated (e.g. after a total hysterectomy). When invitations are sent by the general practitioner, participation is about 65%. The 'level of protection' (percentage of women who have had a smear in the past 3 years, plus the percentage of women for whom a smear is not indicated) is at least 85% or more in a general practitioners' call/recall system. The level of protection when a local authority handles the call/recall system is around 77%.

A computerized system in the general practice offers good options for a call/recall system, and almost all general practices have a computer system. If the general practitioner handles the call/recall, he can identify women who, for medical reasons, do not need a smear. Moreover, he can make note of non-respondents so that they can be contacted again.


note 9
The Cytobrush can reach the transition zone if it is within the endocervical canal, which is the case particularly after menopause. The combined use of the wooden spatula and the Cytobrush requires more time and effort and is more expensive. However, the percentage of representative cervical smears is 97.5 when the spatula is used in combination with the Cytobrush, compared with 90 when the Cervex Brush is used, and 75 when only the spatula is used. And yet female technicians specifically trained in taking smears for the screening programme obtained representative cervical smears in 92% of the subjects by use of the spatula alone.


note 10
A smear is considered representative if endocervical cells from the original columnar epithelium or the squamous metaplastic epithelium that replaced it can be seen during cytological examination. See ADDENDUM

Metaplasia is the replacement of an epithelial type of a higher level of organization by an epithelial type of a lower level of organization. The zone of transition from endocervical to ectocervical epithelium may appear to be recognizable through the speculum, but this is unreliable.
Nation-wide in the Netherlands, 10.5% of the cervical smears lack metaplastic cells or endocervical cells.2


note 11
An important point of debate was the question of how to handle abnormal results and who is responsible for notifying the woman of these results. The following points play a role in this:

- **medical aspects:** The chance that cervical cancer or its precursors would be missed if there was an inadequate follow-up on P0 or P2,3 results (Pap 0 or 2) is scarcely higher than for a P1 (Pap 1) result.
- **practical aspects:** Giving the general practitioner responsibility for notifying patients of all results has practical consequences.
- **legal aspects:** The medical code of practice states that if the results are cause for concern, such as Pap 3A, it is the general practitioner's responsibility to inform the woman.1
- **patient's responsibility:** In cervical cancer screening, government health authorities and/or the general practitioner invite the woman to participate and thus the responsibility for notification lies with the woman, who is the invited party.

To gain more insight into feasibility and desirability, this question was posed to a random sample of 150 general practitioners. The response rate was 70%. Two-thirds of the respondents considered it desirable and feasible for the general practitioner to supervise the follow-up when the result was P4 or higher (Pap 3A or higher), and to have the woman be responsible for follow-up of less severe results. The decision on this issue was made by the general board of the Dutch College of General Practitioners (NHG). The following comment was added: It follows logically that the general practitioner should be given full responsibility for notifying or supervising the notification of women about all results, if the call/recall system is eventually handled by general practitioners themselves.


note 12
A system in which the general practitioner handles the invitations takes about 10 hours per year in a practice with a computerized call/recall system. This task can be entirely or partly delegated to the practice nurse.1,2 Practical guidelines for implementing the invitation programme and a conversion programme for the transition from the old to the new system are provided in the kit, 'Promoting Expertise in Cervical Smears'.

2. Palm BThM, Kant AC. Bevolkingsonderzoek baarmoederhalskanker. De invloed van de huisarts op deelname en follow-up [Cervical cancer screening programme. The

note 13
The vast majority (99.2%) of cervical smears made in 1992 were suitable for evaluation. Endocervical cells were absent in 11%. There is disagreement about the significance of the presence of endocervical cells as a quality criterion.\(^1\)\(^2\) The question is whether a lack of endocervical cells is cause for an early repeat smear.\(^2\) SEE ADDENDUM

About 11% of the cervical smears made in 1992 were P2 or 3 (Pap 2), 2.5% were P4 or 5 (Pap 3A), and 0.5% were P6 or higher (Pap 3B or higher).\(^1\) That means that a recommendation to repeat the smear was sent out for 25% of the cervical smears, which in 11% of the cases was based on the absence of endocervical cells, and also in 11% was based on results of P2 or 3.

60 to 70% of the premalignant abnormalities found, regress spontaneously.\(^3\)


note 14
The reasons for waiving a smear or postponing the screening are taken from the report from the Ziekenfondsraad [Medical Insurance Board].


note 15
Severe inflammation can produce changes that mimic mild to moderate cytological abnormalities. The relationship between abnormalities of the cervical epithelium and specifically HPV and Chlamydia is complex.\(^1\) HPV and Chlamydia cannot be diagnosed only from the morphological picture. It is not clear whether examination of a patient without symptoms is meaningful when there are indications of HPV or Chlamydia in the smear. When there is evidence of Trichomonas, however, further tests are indeed useful.\(^2\) The recommendation to repeat a smear when there are signs of inflammation has been removed. The decision to repeat a smear depends solely on the suitability of the slide for evaluation and the KOPAC coding.


note 16
The process of obtaining a cervical smear can slightly irritate the epithelium, which can lead to faulty interpretation if another smear is obtained within six weeks.\(^1\) When there are no endocervical cells, it is recommended that the smear be repeated, because part of the false-negative results could be due to the lack of endocervical cells. SEE ADDENDUM if
endocervical cells are also absent in the repeat smear, a working party of the Ziekenfondsraad [Medical Insurance Board] considers the chance of a false-negative result to be so small that resuming regular periodic participation in the screening programme is justified.


**note 17**
No published data have been found to support the stated medical indications for a cervical smear.\(^1\),\(^2\) It is not clear what is meant by "therapy-resistant non-physiological (non-bloody!) vaginal discharge". No link to cervical cancer has been demonstrated for either recurrent Candida infections or microbiologically unexplained discharge.\(^3\),\(^4\) Opinions differ between general practitioners and gynaecologists about indications for a smear outside the screening programme. This is understandable, considering the differences in patient populations in general practice and gynaecological practice.


**note 18**
The recommendations of the Ziekenfondsraad [Medical Insurance Board] for restructuring of the screening programme contain no guidelines for smears made on a medical indication.\(^1\) A normal cytological result in a patient with gynaecological complaints should be considered suspect. A representative smear made in the past and judged to be normal supports normal results in a smear made because of a medical indication.\(^2\),\(^3\) If symptoms are serious or persistent, referral is preferred to repeating the smear.\(^4\) The guidelines for follow-up management are based on a consensus within the working group.


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