GUIDEBOOK FOR
PAP SMEAR SCREENING

DIVISION OF FAMILY HEALTH DEVELOPMENT
MINISTRY OF HEALTH MALAYSIA
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List of Figures

Figure 1  Frosted end glass slide
Figure 2  Taking a sample using Ayre's spatula
Figure 3  Taking a sample using a Cytobrush
Figure 4a Smearing the sample using Ayre's spatula
Figure 4b Rolling the sample using cytophath
Figure 5a Ayre's spatula
Figure 5b Cytobrush
### APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A</td>
<td>Borang permohonan dan laporan Pap smear Kementerian Kesihatan Malaysia PS 1/98 (pindaoan)</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Management of abnormal smears</td>
</tr>
<tr>
<td>Appendix C</td>
<td>Flow chart for management of abnormal smears</td>
</tr>
<tr>
<td>Appendix D1</td>
<td>Notification letter to clients with normal smears</td>
</tr>
<tr>
<td>Appendix D2</td>
<td>Surat maktuman kepada klien dengan bacaan smear normal</td>
</tr>
<tr>
<td>Appendix D3</td>
<td>Notification letter to clients with abnormal smear</td>
</tr>
<tr>
<td>Appendix D4</td>
<td>Surat maktuman kepada klien dengan bacaan smear tidak normal</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENT

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We also acknowledge the contributions of all those involved in the preparation of all previous guidelines.
FOREWORD

Dato' Dr. Narimah Awin
Director
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Cervical cancer remains a major threat to the health and life of Malaysian women and there is a need to improve the services for the early detection and management of this treatable cancer. The screening services using the Pap smear test was started about 30 years ago in 1969; yet we continue to see unacceptably large number of cases of the disease. In the past decade, on the average, there were about 2,500 cases of cancer of the cervix admitted to government hospitals each year with an average of 89 deaths per year.

In 1997, a consensus meeting involving various experts recognized the need for the strengthening of the National Pap Smear Screening Programme through a more organized and coordinated approach. Amongst the major decisions was to use the Bethesda Classification by all laboratories reporting on Pap smear tests. Consequently a working committee in 1998 developed the guidelines titled ‘National Pap Smear Screening Programme’. Although these guidelines have served its purpose well, the time has come for updating and revision. These revised guidelines are more comprehensive and can be used by all levels [primary care services outlets, laboratories and gynaecology clinics] of healthcare workers involved in the screening programme. Health policy makers and programme managers can also benefit from these guidelines.

These revised guidelines replace all previous guidelines as listed below:
• Guidelines on the Pap Smear Services 1982
• Guidelines for Pap Smear Services 1985
• Garispanduan untuk Perkhidmatan Pap Smear 1990
• Garispanduan Perkhidmatan Pap Smear dan Program Saringan STD 1994
• Garispanduan untuk Perkhidmatan Pap Smear 1994
• National Pap Smear Screening Program 1998

I congratulate all those who have contributed towards the development of these revised guidelines as well as those preceding it.

It is hoped that these guidelines will improve the programme performance and help to achieve the objective of reducing the incidence of cancer of the cervix, and ultimately ensure the health and well-being of women.

DATO' DR. NARIMAH AWIN
1. INTRODUCTION

Background

The age-standardized incidence rate of cervical cancer in Peninsular Malaysia is estimated to be 17.8 per 100,000. (Penang Cancer Registry Report, 1994-1998). On an average there were 2,500 cervical cancer admissions to government hospitals and this figure has remained constant over the last 10 years (1992-2001). It accounts for 7.9% of all cancer admissions. Since 1998, cancer of the cervix ranks fourth in terms of total cancer admissions, after cancer of the lungs, leukemia and breast cancer.

The proven screening method for early detection of cervical cancer is cervical cytological examination using the Papanicolaou’s stain generally referred to as Pap’s smear examination. The Pap stain was discovered in the 1940s, and was introduced to the developed countries in the 1960s. It has since then been found to be a cost-effective and extremely useful tool for early detection of cancer of cervix in sexually active women. The slow evolution of cancer of the cervix through a latent period of 10 years makes early detection of this cancer possible and practical.

The cervical cancer screening programme was established in 1969, following the integration of family planning services into the Maternal and Child Health Programme of the Ministry of Health Malaysia.

Objectives

The objectives of the Pap smear screening programme are:

a) To ensure early detection of cervical cancer
b) To determine the magnitude and extent of cervical cancer among the target group (20 to 65 years)
c) To plan activities for management and follow-up of women with abnormal Pap smears
Organization

The Pap smear screening programme is planned, organized and evaluated by the Family Health Development Division, Ministry of Health Malaysia. A National Technical Committee comprising members from other government agencies, NGOs, private sectors and universities, is responsible for its direction and implementation.

At the state level, the Family Health Officer plans and coordinates activities related to Pap smear screening in consultation with the State Pathologist. The smears from the target population are taken by Medical and Health Officers and public health nurses. The smears are read by trained Medical Laboratory Technologist either in hospitals or health clinic laboratories. Some Universities, National Population and Family Development Board (NPFDB), Federation of Family Planning Association Malaysia (FFPAM), private clinics and hospitals also participate in the screening programme. (Figure 1).

![Diagram of Organization](image)

**Figure 1: Organizations Providing Pap smear Screening Services**

- **NPFDB**: National Population and Family Development Board (Ministry of Women, Family and Community Development)
- **FFPAM**: Federation of Family Planning Association of Malaysia
- **NGOs**: Non governmental organizations
2. TARGET GROUP

The Pap smear services are offered to all sexually active women between the ages of 20 and 65 years.

3. SCREENING INTERVAL

The recommended screening interval is three (3) years following two initial consecutive negative smears one year apart.

4. PAP SMEAR TAKERS

Doctors and nurses trained in taking cervical smears.

5. INTERPRETATION OF PAP SMEAR

Pathologists, Medical Laboratory Technologists and other trained personnel are involved in screening and interpretation.

6. EQUIPMENT AND CHEMICALS REQUIRED

<table>
<thead>
<tr>
<th>Clinic Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bivalve vaginal speculum (CUSCO) – all sizes preferably disposable</td>
</tr>
<tr>
<td>2.</td>
<td>Swabs</td>
</tr>
<tr>
<td>3.</td>
<td>Normal saline</td>
</tr>
<tr>
<td>4.</td>
<td>Hand gloves</td>
</tr>
<tr>
<td>5.</td>
<td>Ayre’s spatula</td>
</tr>
<tr>
<td>6.</td>
<td>Cytobrush</td>
</tr>
<tr>
<td>7.</td>
<td>Ordinary glass slide and diamond pencil or frosted end glass slide and 2B pencil</td>
</tr>
<tr>
<td>8.</td>
<td>Fixative – 95% ethyl alcohol or alcohol spray</td>
</tr>
<tr>
<td>9.</td>
<td>Coplin jar with cover</td>
</tr>
<tr>
<td>10.</td>
<td>Request form (PS 1/98 pindaan)</td>
</tr>
<tr>
<td>11.</td>
<td>Slide marker</td>
</tr>
<tr>
<td>12.</td>
<td>Adequate light source</td>
</tr>
<tr>
<td>13.</td>
<td>Couch</td>
</tr>
<tr>
<td>14.</td>
<td>Screen</td>
</tr>
</tbody>
</table>
Laboratory Level
1. Slide staining rack
2. Staining trough
3. Pap stains
4. Sink with tap
5. Slide drying stand rack
6. Mounting medium
7. Cover slip
8. Binocular light microscope – lenses with objectives X10, X20, X40, X100 (optional)
9. Slide labels
10. Slide filing cabinet
11. Fume hood for mounting

7. TAKING A CERVICAL SMEAR

Advice for the client
1. Do not douche or insert any form of medication (suppositories) into the vagina 24 hours prior to the procedure.
2. Avoid sexual intercourse within a period of 24 hours prior to the procedure.
3. Have your pap smear done 10 days after your first day of menstrual cycle.

How to take a cervical smear (refer flow chart 1)

1. Complete the cytology form - PS 1/98 (pindaan) and label the slide
2. Wash your hands and wear gloves.
3. Examine the client in a dorsal position.
4. Swab the introitus with normal saline.
5. Wet the bivalve speculum using sterile water or normal saline (Do not use lubricant).
6. Introduce the speculum into the vagina carefully avoiding contact with the cervix (any bleeding from the cervix will limit accurate evaluation of the smear).
7. Expose the cervix clearly. If there is a discharge, take a swab for microscopic examination and culture and sensitivity if indicated.

8. Take a sample from the cervix using the long end of the Ayre's spatula (Figure 5a) which is turned carefully around the cervix (360 degrees – one complete circle) (Figure 2)

9. Smear the sample on the slide area labeled C. (Figure 1 and 4a)

10. Take another sample if necessary (e.g., menopausal women) from the endocervical canal using a cytobrush (Figure 5b) which is turned carefully around the cervical canal (360 degrees – one complete circle). The end part of the bristle must be visible when taking sample using the cytobrush (Figure 3)

Roll the brush on the slide area labeled D. (Figure 1 and 4b)

11. (A) Dip the slide IMMEDIATELY into a Coplin jar containing a fixative (95% ethyl alcohol) for 30 minutes. OR

(B) Spray the slide using an alcohol spray fixative. Ensure the whole sample is sprayed with the fixative.

12. If using method (A) – stand the slide to drain excess fluid

13. Place the slide/s in the slide maller.

14. Send the slide/s and request forms to the laboratory as soon as possible.

NOTE:
- The fixative (95% ethyl alcohol) must be placed in a covered container to avoid evaporation
- The fixative must be changed regularly
- Do not allow the sample to dry before fixation
- Details of previous smears (if relevant) must be stated in the request form
- Ensure correct labeling of slide and completion of form
FLOW CHART 1: HOW TO TAKE PAP SMEAR

1. Fill up the cytology form (PS1/98-pindaan) and label the slide
2. Wash your hands and wear gloves
3. Examine the client in a dorsal position
4. Swab the introitus with normal saline
5. Wet the bivalve speculum using sterile water / normal saline
6. Introduce the speculum into the vagina carefully
7. Expose the cervix clearly
8. Presence of Discharge
   - YES: Swab for microscopic examination and / or C&S
   - NO: Take sample
Ayre's spatula
Take sample from the cervix (turn one complete circle)
Smear sample on slide area labeled C

Cytobrush
Take sample from the endocervical canal, turn one complete circle
Roll brush on slide area labeled D

Dip the slides into Coplin jar containing 95% ethyl alcohol for 30 minutes
(Stand the slide to drain excess fluid)

Spray the slide/s with alcohol fixative

Place the slide/s in the slide maller

Send the slide/s & request forms to the laboratory

Record
Figure 1: Frosted end glass slide:

N = area for name and identification number
C = area for sample using Ayre's spatula
D = area for sample using cytobrush

Figure 2: Taking a sample using an Ayre's spatula

Figure 3: Taking a sample using a Cytobrush

The end part of the bristle must be visible when taking sample using the cytobrush.
Figure 4a: Smearing the sample using an Ayre's spatula

Figure 4b: Rolling the sample using a cytobrush
Figure 5a: Ayre's spatula

Figure 5b: Cytobrush

Reasons for unsatisfactory smears

1. Usage of lubricants before taking smears
2. Dirty slides
3. Delay in dipping the slides in the fixative
4. Inadequate fixation time (less than 30 minutes)
5. Insufficient sample
6. Blood stained smear
7. Thick smears
8. Excessive discharge (on the slide)
8. PAP SMEAR REPORTING

Cervical smears are reported using the Modified Bethesda System of 1991. This system of reporting incorporates the following 3 basic elements:

A. Adequacy of specimen

1. Satisfactory for evaluation - all the following must be present:
   • Appropriate labeling and identifying information.
   • Relevant clinical information (at least age & LMP)
   • Adequate number of squamous epithelial cells (should cover > 10% of slide surface)
   • Adequate endocervical/metaplastic cells (min. 2 clusters of 5 cells each; except marked atrophy)
   • Smear not obscured by blood/inflammatory cells - if obscured, should be < 50% of the slide surface (microscopic examination).

2. Satisfactory for evaluation but limited by ______
   [one or more of the following]:
   • Lack of clinical information
   • Absence of endocervical/metaplastic cells
   • Partially obscured by blood, inflammatory cells, poor fixation, contaminant; (when 50 – 75% of the epithelial cells cannot be visualised microscopically).

3. Unsatisfactory for evaluation due to ______
   [one or more of the following]:
   • Lack of patient identification (name and ID number).
   • Slides broken beyond repair.
   • Scant epithelial cells (<10% of slide surface covered by squamous cells).
   • Obscured by blood, inflammatory cells, air drying, contaminant (>75% of smear obscured microscopically).
Note:
A technically unsatisfactory smear that contains abnormal cells should not be reported as ‘unsatisfactory’ but rather ‘satisfactory for evaluation but limited by ___’

B. General Categorization:

1. Within normal limits.
   - No abnormality detected.

2. Benign cellular changes
   - Can be due to infection, atrophy with inflammation, radiation, intra uterine device effect, reparative changes, etc.

3. Epithelial cell abnormality
   - Squamous cell abnormality includes ASCUS, LSIL, HSIL
   - Glandular cell abnormality includes AGUS, AIS, Endocervical adenocarcinoma, Endometrial adenocarcinoma, extra uterine adenocarcinoma, adenocarcinoma NOS

C. Final diagnosis
Final diagnosis depends on the highest grade of the lesion identified

Recommendation: Refer to the flow chart for management of abnormal smears (appendix C).

Comments: Additional information that needs to be communicated to the clinician or smear taker.
9. MANAGEMENT OF ABNORMAL SMEARS

Refer to appendix B, C, D for further management:

1. Appendix B: Management of abnormal smears
2. Appendix C: Flow chart for management of abnormal smears
3. Appendix D1: Notification letter to clients with normal smears
4. Appendix D2: Surat makluman kepada klien dengan bacaan smear normal
5. Appendix D3: Notification letter to clients with abnormal smears
6. Appendix D4: Surat makluman kepada klien dengan bacaan smear tidak normal

10. RESULT OF PAP SMEARS

All women who have had a smear taken should be informed of the result.
This may be done by any of the following:

1. Postal (see appendix D1, D2, D3, D4 for suggested format)
2. Telephone
3. Home visit
4. Others
### Bahagian I: Butiran佩霍н

<table>
<thead>
<tr>
<th>Nama Doktor / Juruterap</th>
<th>Tanda Laporan</th>
<th>Tanda Jabatan</th>
</tr>
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</table>

### Bahagian II: Ringkasan Klinikal

<table>
<thead>
<tr>
<th>No. Stolologi &amp; No. Patologi terdahulu</th>
<th>Diagnosis terkini</th>
<th>Tahun</th>
<th>Laki-Laki</th>
<th>Perempuan</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Tika laporan</th>
<th>Tujuan smear laporan</th>
</tr>
</thead>
</table>

#### A. Adequacy of Specimen

<table>
<thead>
<tr>
<th>Satisfactory for evaluation</th>
<th>Unsatisfactory for evaluation</th>
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</table>

#### B. General Categorisation and Descriptive Diagnosis

<table>
<thead>
<tr>
<th>Within normal limits</th>
<th>Benign Cellular changes due to:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Benign Changes associated with:</th>
</tr>
</thead>
</table>

#### II. Epithelial Cells abnormalities

<table>
<thead>
<tr>
<th>Squamous Cell</th>
<th>Glandular Cells</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>High Grade Squamous Intraepithelial Lesion (HSIL)</th>
<th>Other Neoplasms: (specify)</th>
</tr>
</thead>
</table>

#### Conclusion

**Recommendations/Comments:**

<table>
<thead>
<tr>
<th>Tanda Laporan</th>
<th>Nama, Titakan Pegawai Penolak &amp; Tanda Jabatan</th>
</tr>
</thead>
</table>
MANAGEMENT OF ABNORMAL SMEARS

1. Benign Cellular Changes
   1.1. Reactive changes
       Normal screening interval unless clinically indicated for an earlier repeat smear
   1.2. Infective / Inflammatory changes
       Specific treatment and repeat smear at normal screening interval

2. Epithelial Cell Abnormalities
   2.1. Squamous Cells
       2.1.1. Human Papilloma Virus (HPV)
           - Repeat smear in six months
           - If normal, follow normal screening interval
           - If HPV persists, refer for colposcopy
       2.1.2. Atypical Squamous Cells Of Undetermined Significance (ASCUS)
           - Repeat smear in six months
           - If normal, follow normal screening interval
           - If ASCUS persists, refer for colposcopy
       2.1.3. Low Grade Squamous Intraepithelial Lesion (LGSIL)
           - Refer for colposcopy where possible, otherwise repeat smear in six months
       2.1.4. High Grade Squamous Intraepithelial Lesion (HGSIL)
           - Refer for colposcopy

2.2. Glandular
   2.2.1. Atypical Glandular Cells of Undetermined Significance (AGUS)
           - Favour reactive changes, repeat smear in six months
           - Favour neoplastic changes, refer gynaecologist
   2.2.2. Benign Endometrial Cells in postmenopausal state.
Appendix C

FLOW CHART FOR MANAGEMENT OF ABNORMAL SMEARS

Abnormal Smear

- Benign Cellular Changes
- Epithelial Cells Abnormalities
- Other Neoplastic Changes

Reactive Changes
- Infection/Inflammatory changes
- Squamous lesion
- Glandular lesion

HPV
- ASCUS
- LSIL
- HSIL

Squamous Cell Carcinoma

- AGUS
- Adenocarcinoma

Reactive changes
- Neoplastic changes

HPV/ASCUS OR LG SIL persist

Repeat smear 6/12

Colposcopy

Normal
- Abnormal

Repeat smear 6/12

Colposcopy available

Refer Gynaecologist

Key:
- HPV: Human Papilloma Virus
- ASCUS: Atypical Squamous Cells of Undetermined Significance
- AGUS: Atypical Glandular Cells of Undetermined Significance
- LSIL: Low-Grade Squamous Intraepithelial Lesion
- HSIL: High-Grade Squamous Intraepithelial Lesion
Notification letter to clients with normal smear

Name: 
Address: 

Date: 

Mrs/Ms,

Your Pap smear has been reported as normal. You are advised to undergo a repeat Pap smear on .................................................

However if you should experience any symptoms such as vaginal bleeding after intercourse or vaginal discharge, please consult your doctor.

__________________________
Signature

Name: 
Department: 

* Kindly take note that a Pap smear test is a screening test. In a small number of women this test can fail to detect abnormal cervical changes.
Appendix D2

Surat makluman kepada klien dengan bacaan smear normal

Nama : 
Alamat :

Tarijik : ________________

Puan,

Ujian Pap smear anda telah dilaporkan sebagai normal. Anda dinasihatkan untuk melakukan ujian Pap smear pada ________________________________________.

Walau bagaimanapun sekitanya puam mengalami sebarang tanda seperti discoj vagina atau pendarahan vagina selepas persetubuhan, sila berjumpa doktor.

__________________________
Tandatangan
Nama : _________________________
Cop Jabatan :

* Sila ambil perhatian bahawa ujian Pap smear adalah satu ujian penyaringan. Dalam sebilangan kecil wanita ujian ini gagal mengesan tanda-tanda abnormal pada/dalam pangkal rahim.
Appendix D3

Notification letter to clients with abnormal smear

Name: 
Address: 

Date: 

Mrs/Ms,

Your Pap smear test result is ready. You are kindly requested to come to the clinic for follow-up treatment as follows:

Date: 
Time: 
Clinic / hospital: 

Thank you.

______________________________
Signature

Name: 
Department chop:
Surat makluman kepada klien dengan bacaan smear tidak normal

Nama :
Alamat:

Tarikh :

Puan,

Keputusan ujian Pap smear puam telah siap. Puan dikehendaki datang ke klinik untuk mendapatkan rawatan selanjutnya sebagaimana berikut:

- Tarikh :
- Masa :
- Klinik/ hospital :

Terima kasih,

____________________
Tandatangan

Nama :
Cop Jabatan :