Reporting cervical cytology

The Bethesda System

NCSP clinical guidelines for managing women with abnormal cervical cytology

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THE BETHESDA SYSTEM
Principles

- must communicate clinically relevant information to the patient's health-care provider
- should be uniform and reasonably reproducible between pathologists and laboratories
- must reflect the most current understanding of cervical neoplasia

Bethesda 2001 is currently used in New Zealand

- Used to report all cervical/vaginal cytology since 1 July 2005
- Standard report text is used by all laboratories
- Free comments can be added to the report but do not go to the NCSP-Register
- Bethesda 2014 is likely to be introduced in 2020

The Bethesda System

Specimen Adequacy

Interpretation/Result

Recommendation

Adequacy: Satisfactory for evaluation

The specimen is satisfactory for evaluation.

The specimen is satisfactory for evaluation. No endocervical/transformation zone component is present.

* At least 10 well-preserved endocervical or squamous metaplastic cells either singly or in clusters, constitutes an adequate transformation zone component.

Comments

- The presence or absence of a transformation zone component provides a useful quality indicator for sample takers but absence of TZ cells is not associated with increased rates of squamous lesions on follow-up.

- The specimen is satisfactory by definition, if atypical or abnormal cells are identified.

Adequacy: Unsatisfactory

The specimen is unsatisfactory for evaluation because….

- of insufficient squamous cells.
- of poor fixation/preservation.
- foreign material obscures the cells.
- inflammation obscures the cells.
- blood obscures the cells.
- of cytolysis/autolysis.

Interpretation/Result

- All reports are categorised by the result to assist sample takers to process reports
- The category is given as a heading at the top of the report

Negative for Intraepithelial Lesion or Malignancy

Epithelial Cell Abnormality

Other

Negative for Intraepithelial Lesion or Malignancy

Normal findings

Organisms

Other non-neoplastic findings

- Reactive changes (optional to report) e.g. associated with inflammation, previous radiation, an IUCD etc.
- Normal endometrial cells in women 40+ yrs (NZ)
- Atrophy (optional to report)

Organisms

There are organisms consistent with *Trichomonas vaginalis*

There are fungal organisms morphologically consistent with *Candida* species

There is a shift in microbiological flora suggestive of bacterial vaginosis

There are bacteria morphologically consistent with *Actinomyces* species

There are cellular changes consistent with *Herpes simplex virus*

Reactive/non-neoplastic changes

There are reactive cellular changes present.

There are endometrial cells present in a woman over the age of 40 years.

There are atrophic cellular changes present.

Epithelial cell abnormalities

Squamous

Atypical Squamous Cells (ASC)

- of undetermined significance (ASC-US)
- cannot exclude HSIL (ASC-H)

LSIL: Low-grade Squamous Intraepithelial Lesion

HSIL: High-grade Squamous Intraepithelial Lesion

-with features suspicious for invasion

Squamous Cell Carcinoma

Glandular

Atypical Glandular/Endocervical/Endometrial Cells (AGC)

Atypical glandular/endocervical cells, favour neoplastic

Endocervical Adenocarcinoma in Situ (AIS)

Adenocarcinoma: endocervical/endometrial/extrauterine/NOS

Other

Other Malignant Neoplasms

There are abnormal cells consistent with a malignant neoplasm.

(sarcoma/lymphoma/melanoma)

RECOMMENDATION

The next sample should be taken in three years, based on the NCSP history held on the NCSP Register.

……..*other report recommendations depend on the result, clinical context and NCSP history*

In view of the abnormal clinical history provided, urgent referral for assessment is recommended regardless of the cytological findings.

The Bethesda System
References

- The 2001 Bethesda System. Terminology for Reporting Results of Cervical Cytology. Solomon D. et al

  JAMA April 24 2002 Vol 287 No.16 pp 2114-9

- The Pap Test and Bethesda 2014. Nayar R, Wilbur DC.

  Cancer Cytopathol 2015;123:271-281

- The Bethesda System for Reporting Cervical Cytology.

  Nayar and Wilbur 3rd Edition 2015 Springer

- www.cytopathology.org/NIH (Website atlas of images)

Bethesda 2014: changes

1. Normal endometrial cells will be reported for women 45+ years of age, not 40+ years as currently.

2. Laboratories have more discretion to report samples with marginal cellularity in older women as satisfactory

Bethesda 2014 is likely to be introduced in New Zealand later this year.

NCSP Clinical Practice Guidelines 2020

- are being developed currently and will replace the current NCSP Guidelines for managing women with abnormal cervical cytology results.
- The main changes are:

- recommended age to commence screening is now 25 years

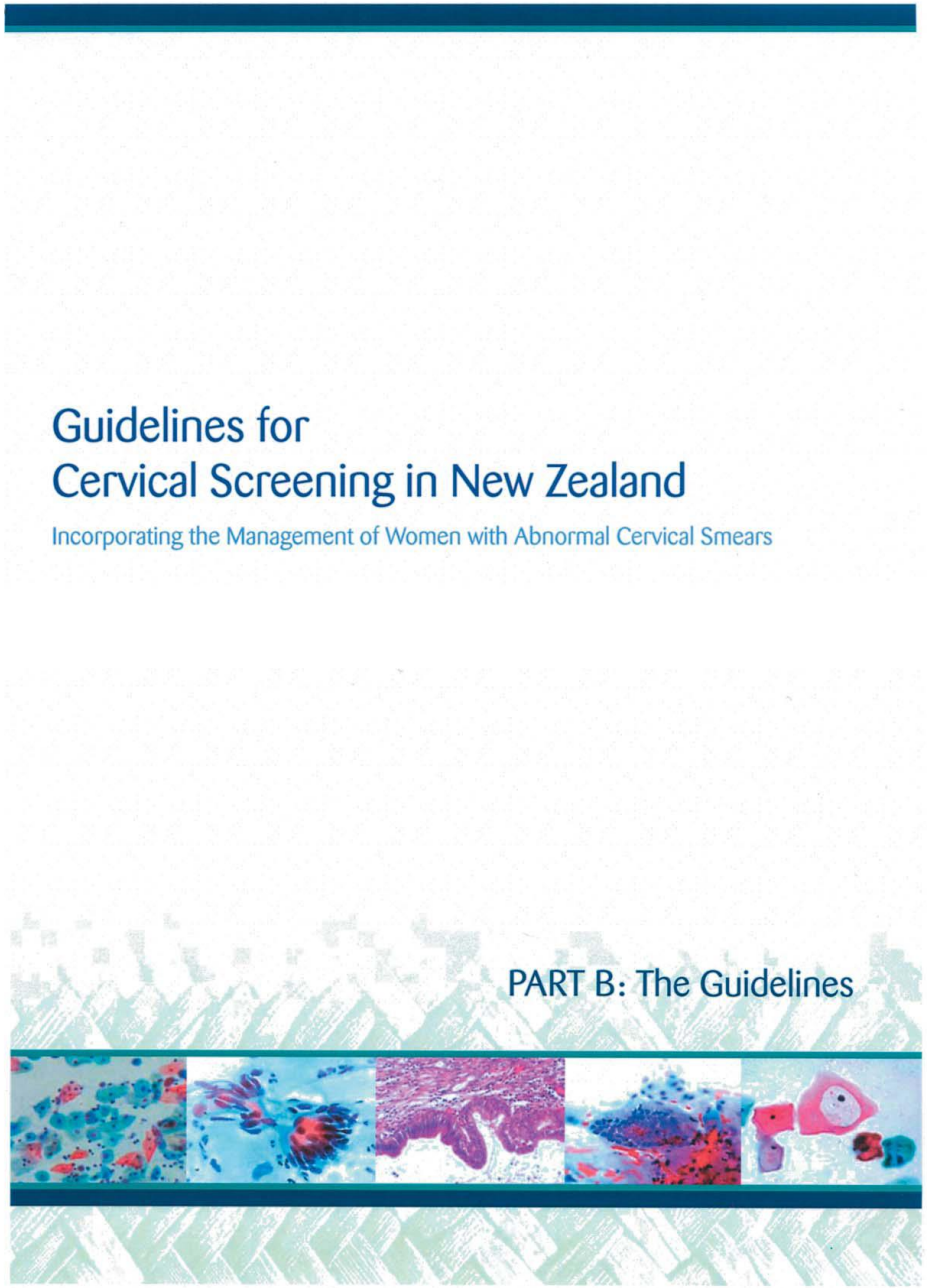
- recommended that underscreened women have two (normal) cervical cytology samples before ceasing screening even if they are over 69 years of age

- clinical guidelines are provided for assessing women with abnormal bleeding

The Clinical Practice Guidelines will be updated again prior to the introduction of HPV primary screening

NCSP Guidelines
Sept 2008

hrHPV Testing was introduced on October 2009 for women in selected clinical groups



Women with unsatisfactory cervical cytology

Report: Unsatisfactory

Rec: Repeat cervical cytology within 3 months

Refer for colposcopy after three consecutive unsatisfactory cervical cytology reports

Women with **normal** cervical cytology

Report: Negative for intra-epithelial lesion or malignancy (squamous or glandular)

Rec: Repeat cytology in three years unless….

…….this is the first sample, or more than 5 years has elapsed since the previous sample: then

Rec: Repeat cytology in 12 months

Women with **low-grade** squamous abnormalities

Report: Atypical squamous cells of undetermined significance (ASC-US)
or Low grade squamous intraepithelial lesions (LSIL – CIN1)

Rec: **1. Women 20-29 yrs**

- with no previous abnormal in last 5 years: Repeat cervical cytology in 12 months…..*next slide*

- with a previous abnormal in last 5 years: Referral for colposcopy

2. Women 30+yrs

- with no previous abnormal in the last 5 years: Reflex HrHPV test *…..next slide*

- with a previous abnormal in 5 last years: Referral for colposcopy

Women with low-grade squamous abnormalities (cont.)

Women 20-29 years

with 12 month repeat cytology after first ASC-US/LSIL

Report: negative → further repeat sample in 12 months

Report: any abnormality → referral to colposcopy

Women 30+ years

HrHPV Test: negative → repeat cytology in 12 months

HrHPV Test: positive → referral to colposcopy

Women with **high-grade** squamous abnormalities

Report: Atypical squamous cells, possible high-grade (ASC-H)

Rec: Refer to colposcopy

Report: HSIL

Rec: Refer for colposcopy

Report: SCC or HSIL with features suspicious of invasion

Rec: Urgent referral to experienced colposcopist or gynaecologic oncologist

hrHPV Testing in New Zealand

1. Triage of Women 30 years and over with ASC-US or LSIL (who have not had an abnormal cytology sample within the last 5 years)

2. Follow-up of women treated for high-grade squamous lesions (Test of cure)

3. Post-colposcopy management of women with discordant results: e.g. high-grade cytology and negative satisfactory colposcopy (specialist testing)

Case 1

- 35 years of age
- normal NCSP history, regular three yearly samples
- asymptomatic, normal clinical examination

- Cytology: ASC-US
- *What should happen next??*

Case 1

- 35 years of age
- normal NCSP history, regular three yearly samples
- asymptomatic, normal clinical examination

- Cytology: ASC-US
- High-risk HPV test: Detected
- *Recommendation:?*

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- normal NCSP history, regular three yearly samples
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- Cytology: ASC-US
- High-risk HPV test: Detected
- Recommendation: Refer for colposcopy

Case 1

- 35 years of age
- normal NCSP history, regular three yearly samples
- asymptomatic, normal clinical examination

- Cytology: ASC-US
- High-risk HPV test: Detected
- Recommendation: Refer for colposcopy

- Colposcopic findings: Low-grade changes observed
- Punch biopsy taken: CIN1 confirmed
- *What will happen next???*

Case 1

- 35 years of age
- normal NCSP history, regular three yearly samples
- asymptomatic, normal clinical examination

- Cytology: ASC-US
- High-risk HPV test: Detected
- Recommendation: Refer for colposcopy

- Colposcopic findings: Low-grade changes observed
- Punch biopsy taken: CIN1 confirmed
- Referred to sample-taker for 2 annual follow-up cytology samples
- Both negative so returned to three yearly screening.

Case 2

- 31 years of age
- cytology 3 years previously was normal, but one sample 7 years previously showed ASC-US
- asymptomatic, normal clinical examination

- Cytology: ASC-US
- *What should happen next?*

Case 2

- 31 years of age
- cytology 3 years previously was normal, but one sample 7 years previously showed ASC-US
- asymptomatic, normal clinical examination

- Cytology: ASC-US
- High-risk HPV test: Not Detected
- *Recommendation: ??*

Case 2

- 31 years of age
- cytology 3 years previously was normal, but one sample 7 years previously showed ASC-US
- asymptomatic, normal clinical examination

- Cytology: ASC-US
- High-risk HPV test: Not Detected
- Recommendation: Repeat cytology in 12 months

Case 2

- 31 years of age
- cytology 3 years previously was normal, but one sample 7 years previously showed ASC-US
- asymptomatic, normal clinical examination

- Cytology: ASC-US
- High-risk HPV test: Not Detected
- Recommendation: Repeat cytology in 12 months

- Repeat cytology: LSIL
- *What should happen next?*

Case 2

- 31 years of age
- cytology 3 years previously was normal, but one sample 7 years previously showed ASC-US
- asymptomatic, normal clinical examination

- Cytology: ASC-US
- High-risk HPV test: Not Detected
- Recommendation: Repeat cytology in 12 months

- Repeat cytology: LSIL
- Refer to colposcopy

Case 3

- 22 years of age
- Asymptomatic, cervix appears normal
- First cervical cytology sample

- Cytology: LSIL
- *What should happen next?*

Case 3

- 22 years of age
- Asymptomatic, cervix appears normal
- First cervical cytology sample

- Cytology: LSIL
- Repeat cytology in 12 months

Case 3

- 22 years of age
- Asymptomatic, cervix appears normal
- First cervical cytology sample

- Cytology: LSIL
- Repeat cytology: ASC-US
- *What should happen next?*

Case 3

- 22 years of age
- Asymptomatic, cervix appears normal
- First cervical cytology sample

- Cytology: LSIL
- Repeat cytology: ASC-US

- Referral to colposcopy

Case 4

- 42 years of age
- CIN 2 treated 10 years previously. Normal annual cytology samples since.
- Asymptomatic, cervix appears normal

- Cytology: LSIL
- *What should happen next?*

Case 4

- 42 years of age
- CIN 2 treated 10 years previously. Normal annual cytology samples since.
- Asymptomatic, cervix appears normal

- Cytology: LSIL
- Referral to colposcopy

- At colposcopy: HSIL seen and confirmed on biopsy
- Treated with a LLETZ: CIN 3, completely excised
- *What should happen next?*

Case 4

- 42 years of age
- CIN 2 treated 10 years previously. Normal annual cytology samples since.
- Asymptomatic, cervix appears normal

- Cytology: HSIL
- Referral to colposcopy

- At colposcopy: HSIL seen and confirmed on biopsy
- Treated with a LLETZ: CIN 3, completely excised
- Post-treatment colposcopy at about 8 months, then repeat cytology plus hrHPV test (first pair of Test of cure) at 12 months

Case 5

- 23 years of age
- First cytology sample
- Asymptomatic, cervix appears normal

- Cytology: Atypical Squamous Cells, possible high-grade (ASC-H)
- *What should happen next ?*

Case 5

- 23 years of age
- First cytology sample
- Asymptomatic, cervix appears normal

- Cytology: Atypical Squamous Cells, possible high-grade (ASC-H)
- Recommendation: Referral to colposcopy

Case 5

- 23 years of age
- First cytology sample
- Asymptomatic, cervix appears normal

- Cytology: Atypical Squamous Cells, possible high-grade (ASC-H)
- Recommendation: Referral to colposcopy

- Colposcopy satisfactory (SCJ fully visualised)
- Minor changes only seen: Cervical biopsy inflammation only
- hrHPV test: Detected (Specialist ordered)
- MDM discussion: recommends LLETZ: HSIL on histology

Case 6

- 63 years of age
- LSIL 15 years previously: normal samples since.
- Two recent episodes of vaginal bleeding, cervix looks normal

- Cytology: Normal (atrophy present)
- *What should happen next?*

Case 6

- 63 years of age
- LSIL 15 years previously: normal samples since.
- Two recent episodes of vaginal bleeding, cervix looks normal

- Cytology: Normal (atrophy)
- Recommendation: Referral to colposcopy because of symptoms

Case 6

- 63 years of age
- LSIL 15 years previously: normal samples since.
- Two recent episodes of vaginal bleeding, cervix looks normal

- Cytology: Normal (atrophy)
- Recommendation: Referral to colposcopy

- Colposcopy difficult because of marked atrophy. SCJ not fully visualized. Colposcopic impression: HSIL
- Biopses: CIN 3. Repeat cytology: HSIL, possible invasion
- Cone performed because upper limit of SCJ not seen: HSIL with focus of SCC in the endocervical canal

Women with histologically confirmed LSIL

- Treatment not recommended as such lesions are considered to be an expression of a productive HPV infection

- Refer back to smear-taker for repeat cytology at 12 and 24 months.

  If both repeat samples negative return to routine screening

  If either repeat sample shows any abnormality then refer back to colposcopy

Women with histologically confirmed HSIL

Women with histologically confirmed CIN 2 or 3 should be treated

Exceptions: 1. CIN2/3 in pregnancy

2. Women under 25 years of age with CIN2

LLETZ: excisional treatment

Most lesions are treated this way in New Zealand

Cone Biopsy: may be used if there is

1. Extensive HSIL
2. Failure to visualize the upper limit of the transformation zone with high-grade cytology
3. Suspicion of early invasive cancer on cyto/colp/histo
4. Suspected presence of a glandular lesion on cyto/histo

Follow-up after treatment
Women treated for CIN 2 or 3

- colposcopy +/- cytology at about 8 months (6-12 months) post-treatment

- cytology and HPV Test @12 months after treatment
  (Test of Cure – first round)

If both negative, repeat cyto and HPV Test@ 12 months
  (Test of Cure – second round)
  - If both negative again, return to 3 yearly screening
  - If any tests are abnormal/positive, return to colposcopy
- any abnormal smear within 5 years after treatment: referred to colposcopy

Women with glandular abnormalities

Report: Atypical glandular cells (AGC) or endocervical adenocarcinoma in situ (AIS)

Rec: Refer to an experienced colposcopist or gynaecological oncologist

Report: Adenocarcinoma

Rec: Urgent referral to gynaecological colposcopist or a gynaecologic oncologist

Special clinical circumstances
Pregnancy

Cervical cytology taken as per NCSP guidelines

Low-grade cytology: as per guidelines

High-grade cytology: refer for colposcopy

Colposcopy: aim is to exclude invasive cancer

- biopsy if invasion suspected otherwise treatment deferred until after delivery
- May need further colposcopies during pregnancy

Special clinical circumstances
Immunosuppressed women

Refer all abnormalities for colposcopy

Assessment and treatment should be by an experienced colposcopist

The whole of the lower genital tract needs evaluating

Treatment should be by excisional methods

Follow-up after treatment should include colposcopy as well as cytology

Follow-up should be annual and indefinite

Special clinical circumstances
Post-menopausal women and women over 40 years with normal endometrial cells

Normal endometrial cells

Normal endometrial cells in pre-menopausal women are rarely associated with endometrial pathology such as endometrial carcinoma and if asymptomatic, no further investigation is recommended.

Normal endometrial cells in post-menopausal women is more often associated with significant endometrial pathology and further investigation should be considered: management is determined by the clinician, considering clinical symptoms, LMP, HRT, use of contraceptives etc

Women with symptoms of uterine pathology require investigation regardless of cervical smear results

Atypical endometrial cells Urgent referral to an experienced colposcopist

Special clinical circumstances
Women who have had a hysterectomy

Subtotal hysterectomy: routine screening

Total hysterectomy for benign reasons:

if benign and normal smears in previous 5 years, no further smears

if smear history is unknown then baseline vault smear

if normal, no further smears

if CIN 1 on histology at any time in past then

3 yearly vault smears until 70 years

Total hysterectomy for CIN 2 or 3:

if HSIL on histology at any time then annual vault smears until 70 yrs HPV testing for test of cure can occur at 12 months after treatment

Total hysterectomy for genital malignancy:

on-going surveillance from a gynaecological oncologist

Clinical Practice Guidelines for Cervical Screening in New Zealand

https://www.nsu.govt.nz/health-professionals/national-cervical-screening-programme