I Histopathology and Cytology Laboratory

1 Contact Information

General enquiries	2319 8360
Histopathology Laboratory	2319 8343
Cytology Laboratory	2319 8341
Consultant Pathologist	2319 8337
Senior Medical and Health Officers	2319 8339
	2319 8335
Medical and Health Officers	2319 8380-8383
Facsimile	2776 2744

2 Materials Provided on Request

Material / Container Type	Material / container code
(a) Plain Container for Histopathology	p27
(b) Frosted-End Glass Slide for Cytology	p15
(c) Broom-type sampler (Cervex-brush)	p28 (*for Surepath*), p32 (*for Thinprep*)
(d) Container for Sputum Cytology, Blue Cap	p12
(e) Container for Fluid Cytology, 50 ml	p11
(f) Container for Urine Cytology, 50 ml	p29
(g) Container, with 7.5% Formalin (for FNA cytology)	p13
(h) Container for slide, with 95% Alcohol (for FNA cytology)	p14
(i) Liquid-based Cytology Vial (for designated cervical screening centres)	

3 Tests Available

The accredited tests in Histopathology & Cytology Division are listed in HOKLAS website:
http://www.itc.gov.hk/en/quality/hkas/doc/hoklas/803.pdf

<table>
<tr><th>Specimen</th><th>Test</th><th>Container</th><th>Preservative</th><th>Request form</th><th>Remark</th></tr>
<tr><td rowspan="2">Surgical specimen</td><td rowspan="2">Histopathology</td><td rowspan="3">Plain</td><td rowspan="2">10% buffered formalin</td><td rowspan="3">DH2541</td><td>– Please refer to Annex 1, 4(A)(C)</td></tr>
<tr><td rowspan="2">– For ordinary purposes the specimen should be fixed immediately with an adequate amount of 10% buffered formalin i.e. 4% formaldehyde, 5-10 times the volume of the specimen.</td></tr>
<tr><td>Small biopsy</td><td>Histopathology</td><td>– Please refer to Annex 4(A)(C)</td></tr>
<tr><td>Skin</td><td>Immuno-fluorescence Study</td><td>OCT compound</td><td>– Please refer to Annex 2, 4(A)(C)</td></tr>
</table>

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<tr><th>Specimen</th><th>Test</th><th>Container</th><th>Preservative</th><th>Request form</th><th>Remark</th></tr>
<tr><td>Cervical specimen</td><td>Cytology</td><td colspan="2">Please refer to Annex 3</td><td>DH2539</td><td>– Please refer to Annex 4</td></tr>
<tr><td rowspan="2">Sputum</td><td>Cytology</td><td rowspan="2">Container for Sputum Cytology, Blue Cap</td><td rowspan="2">Nil</td><td rowspan="5">DH2540</td><td>– First morning deep cough sputum is required. It should be collected before breakfast to avoid contamination with food particles, and preferably after mouth rinse.
– Three consecutive morning sputum specimens are recommended as a routine to ensure the best diagnostic results.
– Please refer to Annex 4(A)(C)</td></tr>
<tr><td>Asbestos bodies, Haemosiderin, Pneumocystis, Eosinophils (qualitative result)</td><td>– Please refer to Annex 4(A)(C)</td></tr>
<tr><td rowspan="2">Bronchial aspirate/ brush</td><td rowspan="2">Cytology</td><td>Frosted-end glass slide for smear</td><td>95% alcohol OR Spray fixative</td><td>– Direct smears on glass slides should be fixed immediately before drying with 95%alcohol or spray fixative (obtainable from the Cytology Lab.) If the smears are kept in 95% alcohol and placed within mailer, the mailer should be placed within a screw-capped container.
OR
– Fresh specimen in saline should be sent to the laboratory as soon as possible (within same day).
– Please refer to Annex 4</td></tr>
<tr><td>Plain</td><td>Nil</td></tr>
<tr><td>Bronchial lavage</td><td>Differential Count</td><td>Plain</td><td>Nil</td><td>– Fresh specimen in saline should be should be kept at 4°C with ice packing during transportation & sent to the laboratory as soon as possible (within same day).
– Green label “Fresh Specimen” should be attached to the request form.
– Please refer to Annex 4(A)(C)</td></tr>
</table>

Specimen	Test	Container	Preservative	Request form	Remark
Urine	Cytology	Container for Urine Cytology, 50 ml	Nil	DH2540	– Second morning or random fresh voided urine can be used. – Three samples collected on three consecutive days are recommended for optimal results. – Early morning urine is not acceptable, as the cells are degenerative. – Mid-stream urine specimens are unsuitable as the urothelial cells are often passed at the beginning and the end of voiding. – The specimen should be labelled "voided" or "catheterised" as the cytological features may differ. – Ureteral-catheter urine for suspicion of neoplasia should be appropriately labelled "right" or "left". – Please refer to Annex 4(A)(C)
	Haemosiderin, Eosinophils, (qualitative result)				
Body fluid	Cytology	Container for Fluid Cytology, 50 ml	Nil	DH2540	– Fresh fluid, at least 20-50 ml (except CSF) is required. – If taken after office hours, the specimen should be kept overnight in the refrigerator at 4°C. – If delay of 1-2 days is expected (e.g. long holidays), an equal volume of 50% ethanol should be added as preservative. – Please refer to Annex 4(A)(C)
Knee joint fluid	Cytology Urate crystals (qualitative result)	Plain	Nil		– Please refer to Annex 4(A)(C)
Fine needle aspiration from various sites	Cytology	Frosted-end glass slide for smear	95% alcohol OR Spray fixative		– Direct smears on glass slides should be fixed immediately before drying with 95% alcohol or with spray fixative (obtainable from the Cytology Lab). If the smears are kept in 95% alcohol and placed within mailer, the mailer should be placed within a screw-capped container. – The remaining material in the syringe should be rinsed into 7.5% formalin and sent together with the direct smears to the laboratory. – Please refer to Annex 4
		Plain container for cell block	7.5% formalin		

4 Request Form

(a) DH 2541: For Histopathology
(b) DH 2539: For gynaecological cytology
(c) DH 2540: For non-gynaecological cytology
(d) DH 2546: For paying cases
(e) "Name" and "HKID card number": These must be clearly filled in for patient identification and filing. If non-HKID card number is provided, please specify. These will facilitate future data retrieval.
(f) "Clinical history", "Laboratory findings", "Therapy given", "Operation and findings", "Clinical diagnosis": These are important and must be entered accurately.
(g) Name of clinic, requesting doctor (in BLOCK LETTER), doctor's signature and assigned MO code have to be provided on the form.
(h) Specimen type and test request should be clearly written.
(i) For **gynaecological cytology**, please use **one request form for one specimen/ slide.**
(j) Any amendment on the request form should be crossed out with the signature of the requesting person and the date.
(k) Please mark URGENT in RED on the request form if a report is needed urgently.
(l) Abbreviations used in the request form
LMP – last menstrual period IUCD – intrauterine contraceptive device
CB – contact bleeding PCB – post coital bleeding PMB – post menopausal bleeding

5 Specimens Labelling and Handling

(a) The cap of the container must be tightly closed to prevent leakage.
(b) Label specimen (glass slides and vials) with patient's name and one other unique identifier (e.g. HKID no., passport no., etc.). If the unique identifier submitted is other than HKID card number, please specify on the request form.
(c) If more than one specimen type or specimens from different sites are sent from the same patient, the specimen type and site of the specimen shall be specified on the specimen container and request form. Please do not label on the cap of the container.
(d) If specimens (without preservative) can only be collected late in the day, they should be kept in a refrigerator at 4ºC and sent to the laboratory for processing on the next working day. (Not applicable for bronchial aspirate/brush/lavage, which must be sent on same day) For fluid specimen an equal volume of 50% ethanol should be added as preservative if a delay of 1-2 days (e.g. long holiday) is expected.
(e) Please refer to Annex 4 "Guidelines for Labelling of Specimens" for detail.
(f) Please adopt safety precautions and use personal protective equipment during specimen collection according to your institution's guidelines.
(g) Please dispose materials used during specimen collection and handle spillage safely according to your institution's guideline and Code of Practice promulgated by the Environmental Protection Department.

6 Specimen Receipt

(a) In the afternoon of every working week-day (Monday - Friday), a specimen receipt slip will be issued to each clinic to acknowledge all specimens received by the laboratory in the preceding working day.
(b) The specimens received on Friday will be listed & issued on the following Monday morning.
(c) Clinics are advised to check for discrepancy (if any) and inform laboratory as early as possible.

7 Pathology Report

(a) Turn around time (TAT % - percentage of cases reported within pledged time)
- Surgical specimen: 14 working days (TAT80)
- Small biopsy: 4 working days (TAT80)
- Gynaecological cytology: 12 working days (TAT100)
- Sputum cytology: 7 working days (TAT80)
- Other non-gynaecologic cytology: 3 working days (TAT80)

(b) Larger specimens and specimens requiring special procedures (e.g. special stains, decalcification, immuno-technique) may need more time before the final report can be issued. The clinician will be informed of preliminary findings, as soon as possible, on t hese specimens.
(c) Telephone enquiry of result will not be entertained. The request and subsequent release of report should be by fax.
(d) All reports will be generated by Laboratory Information System (ECPath) & transmitted by fax in batch daily (Monday – Saturday) at 9pm for various clinics and 7am & 3pm for Kowloon Hospital.
(e) The original request form will not be returned.
(f) Please locate the fax machine for receiving test reports in a secured and enclosed place.

8 Fax Report Summary

(a) In the morning of every working week-day, a check list of all reports faxed to individual unit the day before will be issued.
(b) Clinics are advised to check for discrepancy (if any) and request for resend of missing/incomplete report.

9 Coroner's Autopsy (Kowloon Hospital only)

(a) One should refer to the revised standing circular on coroner's inquest. In general all cases with unnatural cause of death, suspicion of foul play or ill treatment and deaths within 24 hours of general anaesthesia should be referred to the coroner.
(b) Upon decease of a patient in the ward, the medical officer prepares request for post-mortem with case summary & sends to the admissions office.
(c) Admissions office prepares document to coroner (with Signature of Hospital Chief Executive) and obtains a reference number from police.
(d) The medical record with relevant documents has to be sent to pathologist for information by special messenger before sending them to Queen Elizabeth Hospital mortuary.
(e) The mortuary supervisor will coordinate with the police and inform the pathologist of the time of interviewing the relatives with the police.
(f) All prepared particulars and the notification form to the coroner will be sent to the coroner's office.
(g) The pathologist may proceed when the order to perform an autopsy is obtained.
(h) The medical record will be collected by special messenger and return to admissions office.

10 Clinical Autopsy (Kowloon Hospital only)

(a) The deceased's clinical record, case summary, x-rays and written consent for full/limited autopsy from nearest relative have to be sent to pathologist.
(b) The pathologist will arrange date and time of autopsy with the mortuary supervisor at Queen Elizabeth Hospital.
(c) A provisional anatomical diagnosis will be issued within 24-48 hrs.
(d) The final anatomical diagnosis will be issued within 6-8 weeks.

Annex 1 Guidelines for Obtaining Skin Biopsy for Histopathology Examination

(A) Selection of Biopsy Site

(1) Inflammatory dermatoses
- It is important to select a representative portion of the eruption.
- A well developed lesion, not too early or too late, is preferred.
- Avoid sites with secondary changes like excoriation or impetiginization.
- Multiple biopsies on sites showing various stages of development are most informative in a gradually evolving lesion.
- In a generalized eruption, biopsy from the trunk, arm and upper leg is preferable to that from the extremities (especially the lower leg).

(2) Vesicular, bullous or pustular disease
- A newly developed lesion not older than 24 to 48 hours is preferable, to avoid the problem of re-epithelialization.
- Inflammatory component may change with time.
- If immunofluorescence study is required, a separate unfixed specimen including the bullous lesion and perilesional skin is preferred.

(3) Sites to avoid if possible:
- palm and sole
- elbows and knees
- lower leg

(B) Selection of Biopsy Method

Mostly dictated by the suspected disease process and individual preferences:

(1) Superficial disease such as seborrhoeic keratosis, solar keratosis or wart
- Shaving, scissors removal, curettage

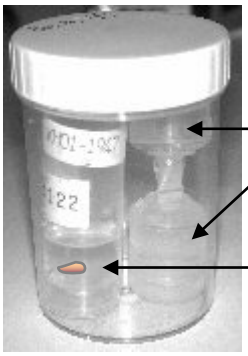
(2) Deep processes such as panniculitis
- Deep incisional biopsy or big (> 4 m m) punch biopsy including the subcutis down to superficial fascia

(3) Eruptions with actively progressing border and atrophic or sclerotic lesions
- Elliptical incision bridging the area of normal and lesional skin; should also include the whole dermis together with most of the subcutis

(4) Nodular, fungating, pigmented or suspected malignant lesion
- Excisional biopsy is preferred. If incisional biopsy is more practical, one that extends beneath the deepest part of the lesion and includes as much of the lesion as possible is preferable.

Annex 2 Guidelines for Preparing Skin Biopsy for Immunofluorescence Study

(A) Fresh skin specimens for immunofluorescence study should be coated with OCT compound. Specimens should NOT be wrapped up in gauze or immersed in normal saline. Suggested example of specimen preparation is illustrated below; the containers and OCT compound can be obtained from the Histopathology Laboratory.



(B) In order to facilitate prompt delivery of fresh skin specimens to the histopathology laboratory for immediate handling, please attach a green label "Histo. Lab. Fresh specimen" to the laboratory request form for all fresh specimens.

(C) Separate skin biopsy specimens and request forms for histopathology examination and immunofluorescence study are preferred as histopathological features are better preserved in fixed specimens. Please also refer to "Guidelines for Obtaining Skin Biopsy for Histopathology Examination" (Annex 1).

Annex 3 Guidelines for Obtaining Optimal Cervical Cytology Specimens

(A) Introduction

The cervical cytology test has been proved to be very effective in detection of the precursor lesions of cervical cancer. The cervical smear test however like any other screening test, has inherent limitations and is neither 100% sensitive nor 100% specific.

(B) Specimen Collection

In order to improve smear reliability and decrease false negative rates, we need to improve the quality of the cellular samples submitted for assessment as well as the reliability of reporting in the laboratory. The followings highlight some practical aspects of specimen collection.

(1) Timing of Taking Cervical Samples

The sample should best be taken around mid cycle. It is important to avoid taking cervical sample when the patient is menstruating, as excessive blood will significantly obscure the smear. The patient should be instructed not to use a vaginal douche, pessary or any type of lubricant 24 hours prior to having a sampling.

(2) Exposing the Cervix

Most cancers and precancerous lesions arise in the transformation zone of the cervical canal. For a cervical sample to have maximum diagnostic value, the sample taker has to ensure that the whole of the transformation zone has been sampled with sufficient well preserved cells. The cervix must be visualised with the speculum in situ and under adequate lighting. A lubricant should not be used to facilitate the insertion of the speculum. If a bimanual examination is to be carried out, it should be performed after sampling to prevent lubricant contamination, trauma or dislodgement of diagnostic cells.

(3) Obtaining Cervical Sample by Liquid-based Cyto-preparatory Method

(a) The ThinPrep System

Step 1

A gynaecologic sample is collected using

a broom-type cervical sampling device(Cervex brush) or

spatula ± endocervical brush (Cytobrush).

Step 2

Instead of smearing the cells on a slide, the sample device is rinsed into a ThinPrep vial containing PreservCyt® transport medium.

Broom-type device Rinse the device in the vial by pushing it into the bottom 10 times, forcing the bristles apart. Finally, swirl the broom vigorously to further release material.

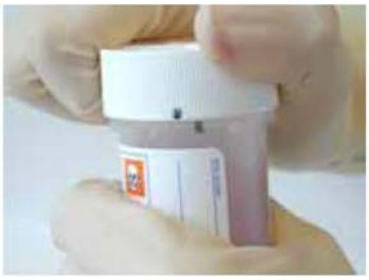
OR

Spatula ± Endocervical brush

Rinse the spatula in the vial by swirling the spatula vigorously 10 times.

Rinse the endocervical brush in the vial by rotating 10 times while pushing against the vial wall. Finally, swirl the brush vigorously to further release material.

The device is then discarded.



Step 3

Tighten the cap so that the torque line on the cap passes the torque line on the vial.

Step 4

Properly label the specimen before sending to the laboratory

(b) The SurePath™ System

Step 1

A gynaecologic sample is collected using a broom-type cervical sampling device.

Step 2

Placing your thumb against the back of the brush pad, simply disconnect the entire brush from the step into the Surepath preservative vial.

Step 3

Place the cap on the vial and tighten

Step 4

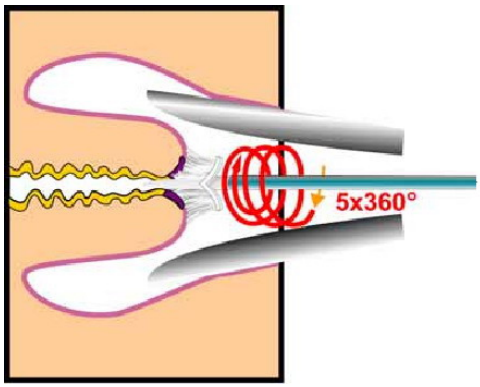
Properly label the specimen before sending to the laboratory

For liquid-based cytology specimens, the solution in the vial contains fixative and no additional fixative is required.

(4) Use of Collection Instrument

The manufacturer's recommendation for use of a particular kind of collection instrument have to be complied with.

If a broom-type sampler (Cervex brush) is used, the central long bristles should be inserted deep enough to allow the shorter bristles to fully contact the ectocervix. The brush is then rotated five times with gentle pressure by rolling the handle clockwise between thumb and forefinger (Fig 4a).

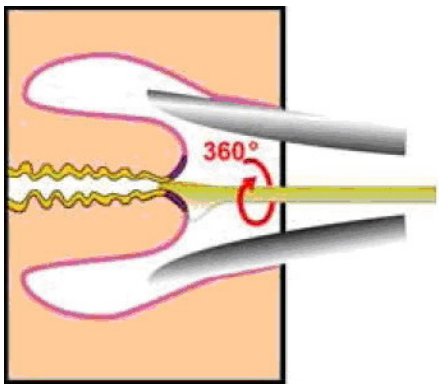


Broom-type sampler (Cervex brush)

Fig 4a

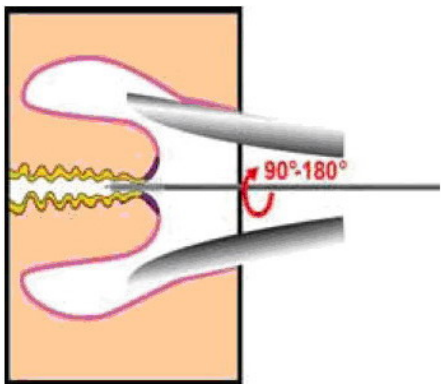
When using the spatula to collect sample, it should be applied with some degree of firmness and rotated around the full circumference of the cervix (Fig. 4b).

If an endocervical brush is required, this should follow the spatula sample as it may cause slight bleeding. The brush is gently inserted into the endocervix and rotated 1/4 to 1/2 turn in one direction (Fig. 4c).



Spatula

Fig 4b



Endocervical brush

Fig 4c

(C) Specimen Submission

All specimens should be submitted to the laboratory accompanied by a fully completed cytology request form to assist in the interpretation. The specimen vial must be labelled according to set guidelines (see Annex 4).

The request form accompanying the specimen should be completed and it should include patient's name, one other unique identifier, age/date of birth, date of collection of specimen, type of specimen, name and code of requesting physician and clinic. Pertinent clinical details such as date of last menstrual period, whether the patient is pregnant, postnatal or postmenopausal as well as use of oral contraceptive and intrauterine contraceptive device usage should be given. History of previous abnormal cervical cytology and histology results, history of cancer, radiotherapy, chemotherapy and gynecologic surgery should be mentioned. Relevant clinical signs or symptoms such as abnormal cervical appearances, post coital or contact bleeding are essential.

The specimen collection method should be stated clearly on the form. The name (in block letters), the MO code and signature of the requesting doctor have to be provided on the form.

All specimens should be packed carefully to prevent breakage or leakage and transported to the laboratory for processing

(D) Auxiliary Test

High risk human papilloma virus (HPV) DNA testing by Hybrid Capture II (HCII) method will be performed for triage of cases with first time diagnosis of atypical squamous cells of undetermined significance (ASCUS) and lack of previous abnormal history.

(E) Management of Abnormal Cervical Cytology

Please refer to the latest version of "Guidelines on the Management of An Abnormal Cervical Smear" in HKCOG website (http://www.hkcog.org.hk) for management of abnormal results. In usual circumstances, no comment would be made on individual report and the guidelines can be followed according to terminology categories. In specific cases, the pathologist may suggest or further detail the management strategy according to the particular specimen smear and previous cytology results.

Annex 4 Guidelines for Labelling of Specimens

(A) Principle

(1) In order to ensure proper patient and specimen identification specimens sent for Histopathology and Cytology examination shall be labelled with patient's name and one other unique identifier (e.g. HKID no., passport no., etc.).

(2) All specimens without proper patient identification would be rendered unsatisfactory for evaluation and rejected without further processing.

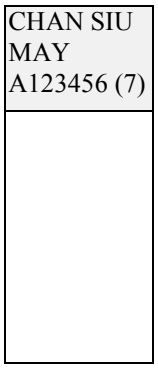
(B) Glass Slides (FNA)

For ease of inscription and the purpose of permanent record, frosted-end glass slides should be used.

(1) Write the name of the patient (which should be identical to that shown on the request form) in block letter on the frosted end of the glass slide.

(2) Write the unique identifier clearly (If the number submitted is other than the HKID card number, please specify on the form.)

(3) Due to limited labelling area, please skip the captions. e.g. (Name:) or (ID:)



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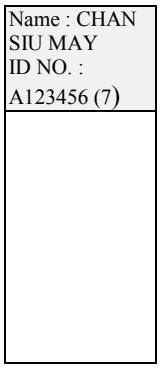

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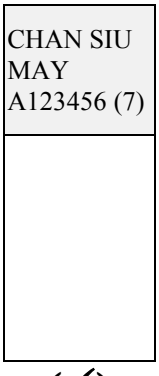
(4) Use HB pencils.

(5) Always write the data in the preferred standardized format for easy checking in the laboratory.



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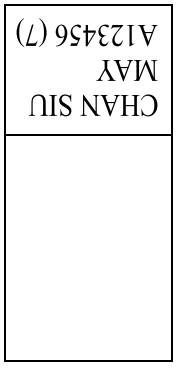

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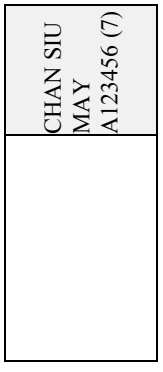

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(6) Please **do not** include the name of the clinic, the laboratory number, the marital status or other unnecessary information.

CHAN SIU MAY A123456 (7)	CHAN SIU MAY A123456(7) M/30 25/5/2002	CHAN SIU MAY A123456 (7) XXXX Clinic
(✓)	(✗)	(✗)

(7) In order to minimize contamination of the slide surface by the gloves starch powder or skin surface squames, please cover the slide with a piece of card paper while inscribing on the frosted surface.

(C) Specimen Containers (including Liquid Based Preparation)

All specimen containers shall be labelled with patient's name and one other unique identifier. Serial number obtained from the request forms is not acceptable. Legible printing or pre-printed labels with the two identifiers are acceptable.