MANUAL FOR CLINICAL AND WARD STAFF (QUEEN MARY HOSPITAL) 1992

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香港大學
THE UNIVERSITY OF HONG KONG

ompiled and printed by the Department of Pathology, HKU

SPECIMENS PICK UP AND RECEPTION SERVICES

Useful telephone numbers:

General Enquiry	855-3186
Clerk I (Ms. K.L. Li)	819-2125
Senior Medical Technologist (Vacant)	819-2134
Administrator(HPS General) (Mr. W.H. Lee)	819-2125

Services

A specimens reception room operated by the Hospital Pathology Services (General) is located at Room LG213 ,Block K . It provides a service for scheduled collection of specimens from wards for delivery to specimen reception room, specimens reception and sorting , lab. report delivery, as well as specimens bottles and test requisition forms distribution for Clinical Biochemistry and Hematology on regular basis from Mondays to Saturdays.

Specimens Pick Up Schedule

For general pick up for all HPS Sections/Units	Additional collection time for Microbiology specimens only
8:00 a.m. - 9:15 a.m. *	
10:00 a.m. - 11:00 a.m. *	
12:45 a.m. - 1:45 p.m. *	
	2:00 p.m.
2:15 p.m. - 3:45 p.m.	3:00 p.m.
	5:00 p.m. *
	7:00 p.m. *

* Saturdays Collection Schedule.

SPECIMEN COLLECTION BY WARD STAFF

PREVENTION OF INFECTION

1. Specimen containers

All specimens must be regarded as potentially infectious. Only the appropriate leak-proof containers issued by the laboratories should be used.

2. Transfer of specimen to container

Avoid fouling the outside of the container and that part of the inside which will later be in contact with the cap.

Do not overfill containers.

Blood samples in leak-proof tubes may be attached to the Request Form, but other specimens must be separate from the Form and kept upright during transmission to Pathology laboratories.

3. "High Risk" Specimens

Specimens from certain patients are especially hazardous as a source of infection to staff.

Such specimens include those from:

1. patients known to be positive for HBsAg
2. tuberculosis patients
3. patients with viral hepatitis
4. patients in haemodialysis wards
5. patients with liver disease
6. immunosuppressed patients
7. suspected or diagnosed AIDS patients

and should be clearly marked "HIGH RISK SPECIMEN" on the bottle or use a BIOHAZARD label. The bottle should be placed inside a sealed plastic bag. The Request Form should also bear the words "HIGH RISK SPECIMEN" or a BIOHAZARD label and should be clipped (NOT stapled) to the plastic bag. The Form should never be placed inside the bag. Forms which are contaminated by blood, urine, etc. will be rejected together with the specimen.

CLINICAL BIOCHEMISTRY UNIT

Main Laboratory : Block K, LG1 & LG2
ICU Laboratory : Block B, 4/F
Paediatric ICU Laboratory : Block K, 10/F
Stat Laboratory : Block K, LG2

	Telephone
Office, Clerk & Records	3175
Main Laboratory	3174/3179
ICU Laboratory	2505
Paediatric ICU Laboratory	3482 (pager 350)
STAT Laboratory	3178 (pager 351)
Duty Biochemist	3199 (daytime) (24-hrs) -- 1163388 Call 1102
----- (Senior Consultant) Overall administration.	3202
Dr. Y.M. Chan (Senior Hospital Biochemist, Acting Head) Ammonia; toxicology; drugs; amino acids; organic acids.	3201 (pager 268)
Dr. Sidney Tam (Clinical Pathologist) Endocrinology; clinical consultation.	3198 (pager 397)
Dr. J.S.K. Lee (Hospital Biochemist) Routine biochemistry; urine chemistries; Stat (Emergency) Laboratory.	3200 (pager 356)
Mr. J.D. Robinson (Hospital Biochemist) Block B ICU Lab; lipids; trace elements; iron & ferritin.	3181 (pager 269)
Mr. W.C. Pang (Scientific Officer) Paediatric ICU Lab, specimen collection & handling; other technical enquiries.	3177 (pager 357)
Mrs. Irene Chan (Senior Medical Technologist)	3197
Mr. M.C. Lee (Senior Medical Technologist)	3180

Clinical biochemistry tests are done in the Main Lab, and 3 Rapid Response Labs (the ICU Lab, the Paediatric ICU Lab, and the Stat Lab). The Main Lab performs routine and special tests. The ICU Lab performs only a few essential tests primarily for Block B patients, and is intended for use in emergencies only. The Stat Lab is located in LG2, Block K and performs essential emergency chemistries primarily for Block K & Block J patients. The Paediatric ICU Lab provides service to the Paediatric wards and the Operating Theatres in Block K.

MAIN LABORATORY

Tests

1. Tests available daily :

   from 9:00 a.m. - 1:00 p.m.

   Routine profile : Na, K, Cl, Ca, P, urea, creatinine, total protein, albumin, total & conjugated bilirubin, ALP, GOT, GPT, GGT, LDH, CPK, urate, cholesterol, glucose.

2. Tests by special arrangement with Duty Biochemist :

   Ammonia, amino acids (quantitative), organic acids,
   arylsulfatases A & B, gal-l-P uridyltransferase,
   transketolase, hexosaminidases A & B, apolipoproteins AI & B,
   plasma catecholamines, α-1,4-glucosidase,
   α- and ß-galactosidases, renin, aldosterone

3. Toxicology :

   from 9:00 a.m. - 9:30 p.m.

   (a) Drug screening list

Acetaminophen (paracetamol)	diphenhydramine	phenobarbital
amantadine	doxepin	phentermine
amitriptyline	ephedrine	phenylpropanolamine
amobarbital	glutethimide	procainamide
amphetamine	impramine	pseucdoephedrine
aprobarbital	lidocaine	quinidine
atropine	methadone	quinine
barbital	methamphetamine	secobarbital
benzodiazepines	methaqualone	triamterene
butabarbital	morphine	trifluoperazine
chlorpromazine	nortriptyline	triflupromazine
cimetidine	pentobarbital	trimeprazine
codeine	pheniramine	trimethoprim

(b) Alcohols (quantitative), salicylates, methotrexate, paraquat & carboxy Hb.

All other tests listed on the Clinical Biochemistry Normal Values card are performed at regular intervals.

Results

1. Reports will be sent to wards by 5:30 p.m. daily (for specimens received before 1:00 p.m.).

2. Ward messenger may collect unclaimed reports from the rack outside the lab.

3. A Remote Control Reporting System (Mailbox) is available to the following locations :

   Phase I of Service

   (1) Block B : E2
   (2) Block J : J4 (U.Pys.U.), J8
   (3) Block K : K7N, K10N, K18N

   Phase II of Service is targeted for implementation from October 1, 1992.

We will telephone to the ward : all ammonia results, all CSF glucose and protein results, grossly abnormal drug results and all abnormal results as defined below:

Glucose	below 2 mmol/L or above 30 mmol/L
Calcium (total)	below 1.6 mmol/L or above 3.6 mmol/L
Sodium	below 120 mmol/L or above 160 mmol/L
Potassium	below 2.6 mmol/L or above 6.0 mmol/L
Amylase (serum)	over 1500 IU/L
CPK	over 1500 IU/L
Carboxyhaemoglobin	over 0.4
Catecholamines	over 2 x upper reference limit
VMA, HVA, HIAA	over 2 x upper reference limit
Toxicology Screening	all positive & confirmed results
Lactate	over 2.0 mmol/L

ICU LABORATORY

Tests available at any time :

Blood gases/pH
Na, K, total Ca
blood glucose
serum amylase, urea, albumin
CSF glucose and protein
serum and urine osmolality

Results

1. The ICU Lab staff will telephone every result to : all OTs, E1 and E6.

2. All CSF and abnormal results as defined in this manual will be telephoned to other locations.

3. Written reports to all locations are delivered by the messenger at regular intervals (7 a.m., 10 a.m., 12 noon, 3 p.m., 5 p.m., 9 p.m., and 11 p.m.).

4. Written reports may also be collected by ward messengers who deliver specimens to the ICU Lab.

5. Results obtained in the past 24 hours may be found in the Results Book in the ICU Lab.

STAT LABORATORY

Tests available at any time :

Blood gases/pH
Serum Na, K, Cl, bicarbonate, urea, creatinine, amylase, CPK, total Ca
Blood Na, K, ionic Ca (lithium heparinized specimen required)
Serum and urine osmolality
Plasma & CSF glucose
CSF total protein

Results

1. All CSF and abnormal results as defined in this manual will be telephoned to all locations.

2. Written reports to all locations are delivered by the messenger at regular intervals (3:00 a.m., 5:30 a.m., 9:00 a.m , 12 noon, 2:10 p.m., 4:00 p.m., 6:30 p.m. and 9:30 p.m.).

PAEDIATRIC ICU LABORATORY

Tests available at any time :

Blood gases/pH

Plasma : Na, K, Cl, bicarbonate, urea, creatinine, total and ionic Ca, total protein, albumin
Total bilirubin, neonatal bilirubin, conjugated bilirubin, unconjugated bilirubin
ALP, AST (GOT), ALT (GPT), GGT, LDH, CPK, amylase
Triglycerides, cholesterol
Glucose, urate

CSF : Glucose, protein

Urine : Na, K, creatinine

Urine and plasma osmolality

Also : Theophylline, ammonia, lactate, Mg, salicylates

Results

1. The neonatal ICU ward (K10N) will receive test results directly from the printer in the nurse station.

2. All blood gases/pH, CSF and abnormal results as defined in this manual will be telephoned to all other locations as soon as possible after verification.

3. Printed reports to all other locations are delivered by the messenger at 10:00 a.m., 12:00 noon, 2:00 p.m., and 4:00 p.m. every weekday. Reports may also be collected by ward messengers from the Paediatric ICU Lab at any time.

4. Results obtained in the past 24 hours may be found in the Results Record Book in the Paediatric ICU Lab.

SPECIMEN COLLECTION AND IDENTIFICATION

Please follow the notes on the Clinical Biochemistry Normal Values card. All containers must be tightly capped before sending to the laboratories.

A. **Request Form** : Fill in **all** required information : name, age, sex, clinical information, etc. in respective columns with legible writing and using standard abbreviations. **It is mandatory to give the patient's H.K. ID number.** For patients below the **age of 11 y**, give the patient's **Hospital number.** Relevant clinical information (including medications) must be provided in all cases. Failure to comply with the above instructions may result in the **rejection** of the request.

B. **Biohazard specimens** : The guidelines provided in this manual entitled "specimen collection by ward staff" should be followed.

C. **Specimen Collection for Blood Gas Analysis** :

Preparation of Syringe for Blood Sampling

1. Aseptically prepare the puncture site of the anticoagulant vial.

2. Draw 0.5 ml of the anticoagulant solution (lithium heparin or other heparin salts 1,000 I.U./L) into the sample syringe (2 or 5 ml syringe), thoroughly wet the entire inside of the barrel of the syringe.

3. Holding the syringe with the tip upward, expel the air and solution, thus filling the dead space of the syring and the needle with the anticoagulant solution. Make sure that no air bubbles are left in the syringe.

4. The anticoagulant wetted syringe is now ready for use.

5. Dry lithium heparinized capillaries and syringes are also available for paediatric & OT patients. Please make arrangement with the laboratory for supply.

Transporting the Specimen to the Laboratory

Precautions must be taken to prevent alterations of blood gas parameters by metabolism of red cells. The only effective means for this purpose is maintaining the sample at 1-5°C and keeping the shortest possible time between the removal of blood from the patient's circulation and the processing of the sample :

1. Before sample collection, prepare a container with a mixture of ice water. The container should be large enough to permit immersion of the entire barrel of the syringe.

2. As soon as the syringe with blood sample has been securely closed with needle cap and labelled, it should be immersed in the ice bath. Make sure that the label remains legible after immersion in ice bath. (e.g. use water-proof ball-point pens)

3. The ice-bath containing the sample should be taken to the laboratory for processing as soon as possible.

D. **Urine and other Body Fluid Specimens**

i. Spot urine and other body fluids should be collected in specific containers supplied by the CBU. Specimen containers from other departments are not suitable.

ii. 24 hours urine specimens should be collected into containers with the **appropriate** preservative (if required). The whole specimen, not aliquots, should be submitted to the laboratory for analysis.

E. **Radioactive urine** : Do not send the entire 24-hr specimen.

i. Mix the specimen well, measure and record the total volume on the requisition form. Specify the nature of the radioisotope on the same form.

ii. Send **an aliquot** sample (about 5 mL) for the tests requested. Place the sample in a tightly screw-capped container and enclose it in a sealed bag (with "radioactive hazard" label) for delivery to the laboratory.

F. **Haemodialysis patient specimens** : Use heparinised blood (in screw-capped lithium heparin bottles) for routine biochemical profiles.

G. **CSF specimens** : The specimen should be collected in the sterilized **plain** bottle supplied with the lumbar puncture kit, obtainable from CSSD. Specimens for CSF glucose should not be drawn after a meal. A **4-hour** minimum equilibration period is required.

All CSF glucose requests should be accompanied by a fluoride **blood specimen** taken at the time of lumbar/ventricular puncture.

H. Hormone Requests

i. Only **one** hormone assay request can be made on one request form with **exception** of the followings :

- serial samples of the same hormone in dynamic tests
- FSH, LH
- PTH & serum calcium
- Insulin & glucose (fluoride bottle)
- T4, Uptake, FTI & TSH
- Progesterone, 17-hydroxyprogesterone
- Renin*, aldosterone*

ii. For **steroid** hormones (i.e. oestradiol, testosterone, aldosterone*, progesterone and 17-hydroxyprogesterone), discard the plastic beads of the clotted blood collection tubes before filling in the blood samples.

iii. For plasma **cortisol**, lithium **heparin** or **EDTA** bottles should be used for specimen collection.

iv. Only **EDTA** blood is acceptable for **ACTH** and **Renin** assay (these specimens should be sent in ice-bath).

v. Urinary specimens for hormone assays should be collected in glass containers with appropriate preservative (if required).

*** Prior arrangement with Duty Biochemist is required.**

Department of Pathology

CLINICAL IMMUNOLOGY

Routine Serology: Rooms 413, 418 and 518, Clinical Pathology Building. (During phase II of CPB refurbishment, Serology will move to Rooms 503 and 504.)

Cell Function: Room 212, University Pathology Building.

Useful telephone numbers:

Immunologists:	Dr. Brian Jones	8192147
	Dr. John Lawton	8192868
	Dr. Eric Chan	8192149 or pager 151
Technologists:	Mrs. Josephine Jones (Serology)	8192148
	Ms. Kannie Chan (Cell Function)	8192178
Secretaries:	Ms. Yvette Chow	8192198
	Ms. Eva Au	8192198

The orange Clinical Immunology request form shows the range of serological tests currently available. Changes to the test menu appear from time to time as new tests are introduced or old tests replaced by more sensitive or more appropriate assays. In such cases circulars are sent to Heads of Clinical Units to explain the changes made.

All in-coming requests are scrutinized by the Immunologists. Tests will only be done if legible, relevant clinical information is supplied. Rejected request forms will be returned to the M.O., but the specimens will be processed and stored. Tests will be done if the request form is returned to the lab. with relevant clinical information added (no need to send a further specimen). Tests will not be done if they are not justified according to the clinical information supplied. If there is any doubt about the use of immunological tests, the Immunologists will be available for consultation during normal working hours.

SECTION ONE

ROUTINE SEROLOGICAL TESTS

5-10 ml of clotted blood is required for each test or batch of tests, though smaller samples may be sufficient in the case of paediatric patients (please consult the laboratory, exn.2148, if in doubt). Clotted blood samples should reach the laboratory within 24 hrs. of collection.

TEST	NORMAL VALUES	REPORT
Anti-nuclear antibody	NEGATIVE	After 1-5 days
Anti-DNA[1]	NEGATIVE	After 2-5 days
Anti-extractable nuclear antigen[2]	NEGATIVE	After 2-4 days
Anti-cardiolipin	< 15 GPL/MPL units ml^{-1}	After 1-2 weeks
Rheumatoid factor	< 33 IU ml^{-1}	After 1-3 days
Anti-mitochondria	NEGATIVE	After 2-7 days
Anti-smooth muscle	NEGATIVE	After 2-7 days
Anti-parietal cell	NEGATIVE	After 2-7 days
Anti-striated muscle	NEGATIVE	After 2-7 days
Anti-adrenal	NEGATIVE	After 2-7 days
Anti-neutrophil cytoplasmic antibody[3]	NEGATIVE	After 1-2 weeks
Anti-acetyl choline receptor	< mean + 3SD of 12 controls	After 1-2 weeks
Anti-thyroglobulin	< 100 ($titre^{-1}$)	After 2-4 days
Anti-thyroid microsomes	< 100 ($titre^{-1}$)	After 2-4 days
C3	60-130 mg dl^{-1}	Same day
C4	13-60 mg dl^{-1}	Same day
Factor B	14-35 mg dl^{-1}	After 1-3 days
C1 inhibitor	10-27 mg dl^{-1}	After 1-3 days
IgG[4]	700-1850 mg dl^{-1}[5]	Same day
IgA	90-450 mg dl^{-1}[5]	Same day
IgM	50-300 mg dl^{-1}[5]	Same day
Secretory IgA	5-40 mg dl^{-1}	After 1-6 days
IgE	< 100 IU ml^{-1}	After 1-6 days

(1) only done on ANA +ives (> 1/40). Positives are usually not titrated but are tested for complement-fixing antibody.

(2) Only done on ANA +ives.

(3) Positives may be tested for anti-myeloperoxidase, anti-lactoferrin and anti-α-granule antibody.

(4) IgG subclass levels available after consultation with immunologists.

(5) Normal adult values shown. For paediatric samples, relevant normal values will be provided with the report.

TEST	NORMAL VALUES	REPORT
α-foetoprotein	< 20 ng ml^{-1}	After 1-2 days
Carcinoembryonic antigen	< 5 ng ml^{-1}	After 1-2 days
Prostate-specific antigen	< 4 ng ml^{-1}	After 1-3 days
β_2-microglobulin	< 2 μg ml^{-1}	After 1-3 days
C-reactive protein	< 1 mg dl^{-1}	Same day
α_1-antitrypsin	150-350 mg dl^{-1}	After 1-3 days
Serum immunoelectrophoresis	NO APPARENT ABNORMALITY	After 1-3 days
Serum free light chains	NO FLC	After 1-3 days
Urine free light chains(6)	NO FLC	After 1-3 days
CSF oligoclonal protein(7)	NEGATIVE	After 1-2 weeks
Protein selectivity(8)	> 1.9 = selective	After 1-3 days
Cryoglobulins(9)	NEGATIVE	After 1-3 days

(6) Requires 20 ml urine, refrigerated or delivered immediately to the laboratory.

(7) Requires CSF and clotted blood.

(8) Requires 20 ml urine and clotted blood. Only done if urine protei- > 100 mg dl^{-1}.

(9) Contact laboratory before drawing blood (exn. 2148).

SECTION TWO

TESTS BY CONSULTATION

Evaluation of lymphocyte subsets and functional evaluations of complement, lymphocytes, granulocytes and monocytes are only performed after consultation with immunologists. When it is agreed which evaluations are appropriate, contact the Cell Function laboratory (exn. 2178) to arrange a date for the test. On the agreed date, a technician will meet the M.O. and the patient before 9.30 am so that blood can be mixed in special bottles and transported immediately to the laboratory. Blood must be taken aseptically. For each test a control sample is required - this must be from an age- and sex-matched volunteer in good health.

Each report will give both the patient's and the control's results, the relevant normal ranges, and an immunologist's interpretation of the data.

TEST	REPORT
Lymphocyte subset profile T-cells (CD3), B-cells (CD19), T-helper cells (CD4), T-suppressor/cytotoxic cells (CD8 - includes a subset of NK-cells), CD4/CD8 ratio, NK-cells (CD16, CD56). Other subsets, eg. $CD5^+$ B-cells, DR^+ T-cells, will also be evaluated if appropriate.	After 1 day
T-lymphocyte function:	
(a) Mitogen (PHA, Con A, PWM, OKT3) stimulation	After 5 days
(b) Delayed hypersensitivity skin test	After 2 days
B-lymphocyte function:	
(a) PWM/SAC-induced Ig-secretion	After 7 days
(b) Evaluation of T-cell regulation	After 7 days
Neutrophil function: Nitroblue tetrazolium reduction, myeloperoxidase, leukocyte adhesion glycoprotein (CD11b), chemotaxis, Candida killing, S. aureus killing, chemotaxis, chemiluminescence	After 1 day
Monocyte function: (Similar to tests of neutrophil function)	After 1 day
NK-cell function: K562 cytotoxicity	After 1 day
Complement function:[10] Classical and alternative pathways	After 1-5 days

(10) Clotted blood must be sent to the Serology laboratory within 1 hour of collection. The time of blood collection must be stated on the bottle.

Department of Pathology

HAEMATOLOGY

BLOOD BANK, QUEEN MARY HOSPITAL

6th Floor, Clinical Pathology Building

Useful telephone numbers :-

Blood Cross-matching Laboratory (24 hours)	8192128
Senior Medical Technologist (Mr. C.K. Chan)	8192120
Senior Clinical Pathologist i/c (Dr G. Cheng)	8553690

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SECTION ONE

REQUEST FOR WHOLE BLOOD/RED CELLS TRANSFUSION : Red cells transfusion are indicated for symptomatic anaemia. Whole blood is indicated only for anaemia with a volume deficit. Even then, it is no better than red cells transfusion plus a volume expander such as saline, ringer's lactate or albumin. The advantages of red cell concentrates over whole blood are reduced risk of circulatory overload, reduced incidence of transfusion reactions due to donor antibodies or plasma components, reduced volume of anticoagulants transfused and citrate toxicity. Red cells with adenine - saline additive have the same flow rate as whole blood. Red Cross Services worldwide are now supplying mainly red cell preparations.

1. Form and Specimen

(i) For each request, one Blood Transfusion Record Form (MD1500) is to be completed in duplicate, and duly signed by a doctor, whose name must also be written legibly in block letters. All required information must be provided, particularly the patient's blood group, if known. When ordering blood, attention is drawn to the following:-

(a) Only the minimum quantity to be required shall be stated; and

(b) Unless specified otherwise, one unit of blood requested shall be defined as a 300-ml bag.

(ii) Disposable 6-ml screw-capped polypropylene tube, with serum separation aid, shall be used for all blood transfusion testing. At least 4-ml freshly drawn clotted blood is required. It is strongly advised that the patient's identity be double-checked prior to drawing the blood, and that full labelling of the specimen be completed immediately afterwards, without any intervening delay. **The Blood Bank will discard a blood specimen, and return the request form for another blood sample, if there is a major discrepancy in labelling between form and sample.**

(iii) Gum label or addressographs may be used for specimen labelling. The label shall be stuck onto the uppermost of the specimen container (but not to seal the cap). The following particulars must be shown legibly both on the specimen label and the request from (MD1500):-

(a) patient name in BLOCK LETTERS;

(b) ward and bed number;

(c) hospital number;

(d) identity card/passport number (only applicable to adult patient wards and on forms only);

(e) sex and age; and

(f) time and date of specimen taking

Omission of any of the above will result in rejection of the request.

(iv) The person who completes and signs a request form (MD1500) will normally be held accountable for blood taking and specimen labelling. In case the job is to be performed by different persons, the one who draws blood and labels a sample should print his/her name, and sign to this effect on the specimen label.

(v) For high risk specimens, proven/suspected case of AIDS or viral hepatitis (see page 2), the request form should be distinctly marked to this effect, to attract the attention of the Blood Bank staff to the danger.

(vi) **A request or specimen will NOT be accepted under any of the following conditions:-**

(a) major discrepancy between form and sample, omission or illegible writing in labelling;

(b) spilt specimen; and

(c) blood-stained request form.

The Blood Bank shall not be accountable for a delay due to any of the above.

(vii) All requests for blood should be sent directly to the Blood Bank, without any delay, by a special messenger. The receiving time will be printed on the form, when the request has been checked to be in order.

(viii) A fresh specimen is required for repeated request made 24 hours afterwards.

(ix) For blood cross-matching to newborn infants or babies, less than three months old and without any history of previous transfusion, a fresh specimen from the mother is (required).

2. Blood Compatibility Test

(i) Blood cross-matching is required for transfusion of whole blood, or red cell preparation.

(ii) The time normally required for a blood compatibility test is:-

Degree of urgency	Minimum time required
(A) non-urgent	2 1/2 hours;
(B) urgent	1 1/2 hours;
(C) desperate (please give prior notice to the Blood Bank through telephone)	Two alternatives are offered (please specify on the form which type of blood issue is required) -
	(a) UN-MATCHED donor blood of the same blood group (ABO & Rh) as the patient The patient's blood group will be tested, and the processing time, for a maximum of 4 blood units, will be 15-20 minutes.
	(b) UN-MATCHED group O blood for an UNGROUPED patient Selected group O blood will be issued. The issuing time, for a maximum of 4 blood units, will be 5-10 minutes. The patient's blood group will NOT be tested and reported at the time of such a blood issue.

(iii) When a request graded as urgent or non-urgent has been sent to the Blood Bank, but immediate blood transfusion is subsequently considered necessary, whilst a blood compatibility test is proceeding, a written request (stencilled forms available from SHA office) to upgrade the degree of urgency to "desperate" is required for the release of un-matched/partially matched donor blood. Such written request must be duly signed by a medical staff, or a nursing staff on his/her behalf.

3. Time for requests

(i) Blood requests for elective operation should arrive at the Blood Bank not later than 3 p.m. on Monday to Friday, or 11 a.m. on Saturday, one working day ahead of the operation. In case of 2 or more consecutive Public Holidays, the requests shall be received by 11 a.m. on the last day of the holidays. Late requests will be processed only after 9 a.m. on the next normal working day, subject to the availability of blood.

(ii) Compatible blood is reserved till 9 a.m. on the day immediately following the date of probable transfusion. Request for an extension of the reservation must be made on the appropriate Blood Transfusion Record (MD1500), which should be sent to the Blood Bank prior to the due date. However, when a patient has been transfused, the remaining cross-matched blood units will be extended only up to a maximum of 72 hours. No extension will be made if a blood unit will expire in 5 days.

4. Issue of Blood

(i) Blood is issued at the Blood Bank, only to medical/nursing staff, who must complete all items in an issue record book and sign to acknowledge receipt. The relevant MD1500, or a written document showing the patient's particulars, e.g. an admission slip, when the former is kept at the Blood Bank, must be produced for all issue of blood.

(ii) The Blood Bank duty officer, together with the person collecting the blood, must jointly vet the full data of the blood to be issued. It is stressed that this must be a joint exercise. A notice, in English and in Chinese, showing the data to be checked, is displayed at the Blood Bank.

(iv) Partially matched, un-matched, serologically un-tested blood or un-matched group O blood for an un-grouped patient are issued only upon specific request from the medical staff concerned, who should understand that the Blood Bank will NOT be responsible for any serological reaction undetected by incomplete incubation time (for issue of un-matched or partially matched blood), or for any potential infectivity of the donor's blood subsequently detected (for issue of serologically un-tested blood).

(v) **Blood should be transfused as soon as possible after issue. Storing blood in an ordinary refrigerator without any temperature surveillance at ward is grossly unsatisfactory. Un-used units of blood must be returned to the Blood Bank as soon as possible and units of blood returned 4 hours or more after issue will not be accepted from a ward.**

5. Blood Transfusion to a Neonate

Whole blood in a small volume (up to 150-ml) may be prepared at this Blood Bank, via a closed circuit system, for transfusion to a neonate. The requested amount must be indicated on the form at the time of request. The blood unit, so prepared and issued, is not returnable. However, the service will be initially coonfined to the use of group O blood only.

6. Use of blood from a "walking donor"/directed blood donation

(i) The Government Hospital Blood Banking Advisory Sub-Committee has, in principle, discouraged the use of "walking donor" (for an infant patient) or of directed blood donation (for an adult patient) to obtain fresh blood for transfusion. Fresh whole blood and various types of blood components are readily available from the Blood Bank upon specific request;

(ii) If a medical staff decides to use such type of blood for transfusion he/she should fully understand that -

(a) this type of donated blood will NOT be tested for HIV antibody, nor for Alanine Aminotransferase (ALT);

(b) the doctor has explained to the patient, or the patient's parent / guardian in case of a minor, that HIV antibody test and other serological tests are not performed on the donated blood, and ensures that the latter understands fully the risk involved and the consequence arising from the use of such type of donated blood; and

(c) a doctor of the Unit concerned must be present to conduct a medical examination and perform the phlebotomy. The doctor or the unit is responsible for the collection, labelling, storage and issue of the blood units.

(iii) The Blood bank will accept a request for laboratory testing on "walking donor"/directed blood donation only when -

(a) the request is for sensitzed patients requiring blood from donors of rare phenotype and

(b) the donors and satisfy the exclusion criteria for regular blood donors.

(c) the unit will not be released until all microbiological tests results are known.

SECTION TWO

REQUEST FOR BLOOD COMPONENTS

1. Red Cell Concentrates

Blood compatibility test is required. Please refer to the procedures outlined in Section one.

2. Washed Cells

Blood compatibility test is required. Please refer to the procedures outlined in Section one.

The request must reach the Blood Bank at least 2 working days ahead the expected date of transfusion, and the service is primarily confined to patients suffering from PNH on IgA deficiency. Washed cells have a shelf life of only 12 hours after preparation, and un-used units are not returnable.

3. Buffy Coat Preparation

Blood compatibility test is required. An initial request, made on stencilled blood component request form in duplicate, should reach the Blood Bank before 12:30 p.m. on Monday to Friday. No preparation will be available on Public Holidays. When the product is available, the Blood Bank staff will inform the relevant ward to send completed MD1500 and patient sample for blood compatibility test.

The product has a shelf life of 1 day, and should be transfused as soon as possible.

Only accepted indication for graunlocyte transfusion is proven sepsis in neutropenic patients (absolate neutrophil count < 0.2) not responsive to antibiotics. It is doubtful whether the buffy coat preparation contain sufficient neutrophils to have clinical effect. Granulocyte for transfusion is usually collected by apharesis.

4. Platelet Concentrate

A request, made on blood component request form in duplicate, should reach the Blood Bank before 1 p.m. on hormal working days, and the preparation will normally be available for collection in the evening. A limited stock is kept at the Blood Bank for emergency use. The preparation has shelf life of 5 days. Each unit of platelet concentrate contains > 5.5×10^{10} platelets in 50-60 ml of plasma. Each unit produce an increment of ~10×10^{9}/l in platelet count in unsensitized patients. Usuall dosage 1 unit/10 kg.

5. Fresh Frozen Plasma

   Request should be made on blood component request form in duplicate. Stock is kept at the Blood Bank for immediate issue upon request. Its only indications are replacement of coagulation factors deficiencies, plasma exchange for TTP, HUS and DIC. The preparation has a shelf life of 1 year, and should not be used for circulatory volume expansion, nutrition, reconstitution of whole blood, treatment of bleeding without documented coagulation deficiencies. Usual dosage 10-15 ml/kg.

6. Cryoprecipitate

   Request should be made on blood component request from in duplicate. Stock is kept at the Blood Bank for immediate issue upon request. The preparation has a shelf life of 1 year.

7. Fresh whole blood - only possible indication is for neorates undergoing exchange transfusion. Labile coagulation factors and platelets deterioate within 24 hrs of collection. In contract to FFP and platelet concentrates, there are no quality controls of the platelet and coagulation factors content of whole blood. Therefore fresh whole blood cannot be considered a reliable source of platelets, leucocytes and labile coagulation factors.

Blood components are issued at the Blood Bank only to medical/nursing staff, who must complete all entries in an issue record book and sign to acknowledge receipt;

All blood components other than Red Cells are not returnable after issue.

If you are in any doubt, please contact the Blood Bank Staff.

Department of Pathology

HAEMATOLOGY

MAIN LABORATORY

LG2, BLOCK K
(8553XXX)

Useful telephone numbers:

DAYTIME:	
Office, Clerk & Records	3152
General Laboratory (24 hours)	3166
Out-patient Laboratory	3167
Senior Medical Technologist	3154
Scientific Officer	3169
Medical Staff	
Senior Lecturer (Dr. L.C. Chan)	3160
Senior Clinical Pathologist (Dr. A. Pollock)	3159
Senior Clinical Pathologist (Dr. G. Cheng)	3690
Clinical Pathologists (Dr. D. Wei & Dr. S.Y. Ha)	3153
Clinical Pathologists (Dr. Y.L. Kwong & Dr. H.W. Liu)	3163
Clinical Pathologist (Dr. C.K.C. Lam)	3158
AFTER HOURS:	3166
ICU LABORATORY	8192505
Paediatric ICU Laboratory	3483

Long-distance radiopager for medical staff on call - please contact the technical staff on duty in the General Laboratory.

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IMPORTANT

Arrangements for "High risk" specimens

(1) See Page 2.

(2) Only the following tests will be done routinely on such high risk specimens viz,:

a) Haemoglobin b) WBC c) Platelet count
d) Differential WBC count e) Prothrombin time
f) Activated partial thromboplastin time
g) Thrombin time h) Fibrinogen level

These tests will be performed at the end of the day in the Main Laboratory.

Tests other than those listed above will only be done after prior arrangement with medical staff of the Haematology Unit.

(3) Finger-pricks will not be done on high-risk patients or patients suspected of AIDS.

SUMMARY FOR COMMON HAEMATOLOGY TESTS

Test	Sample	Remarks
*Haemoglobin, WBC *HCT & RBC Indices *Platelets RBC Morphology Differential WBC Reticulocytes	EDTA 2.5 ml (1ml for infants)	Exact volume Mix sample well
ESR	EDTA 2.5 ml	Exact volume
*PT, APTT, TT *Fibrinogen	Citrated 5 ml (2 ml for infants) Citrated 10ml if extra tests required	Exact volume
*D-Dimer	5 ml citrated blood	
Factor Assays Inhibitor Assays Platelet Function Tests Fibrinolysis Studies Lupus Anticoagulant Thrombophilia Studies	By arrangement with Pathologists only	
Leukaemia Cytochemistry & Immunocytochemistry	EDTA blood 2 x 2.5 ml 2ml EDTA marrow blood	Mix sample well
Haemoglobin Pattern Studies	EDTA 2 x 2.5 ml	
G6PD Screening & Assay	EDTA 2.5ml	Mix sample well
Vit B12 & Folate Assays	Clotted blood 10 ml + EDTA 2.5 ml	Mix EDTA sample well
Haptoglobin & Methaemalbumin	Clotted blood 5 ml	Avoid haemolysis
*Methaemoglobin Level	EDTA 2.5 ml	Mix sample well
*Direct Coombs Test Blood Grouping Antibody Screening Antibody Characterisation	2.5ml EDTA blood Clotted blood 5 ml 5 ml in EDTA + 10 ml clotted blood	
For all other tests	Contact Clinical Pathologist	

*Test done 24 hours/day

ROUTINE COUNTS AND MORPHOLOGY

1. Timing

   a. Specimens received in the morning and before 2.00 p.m.

      Results on routine tests should be ready by 5.00 p.m. the same day and delivered to the duty room of each floor of QMH by 5.30 p.m.

   b. Specimens received in the afternoon after 2.00 p.m.

      Preliminary results of tests done on the automated counters would be available, but other tests may have to be completed the next day.

COAGULATION STUDIES - Pink haematology forms

1. Timing

   a. For Prothrombin Time (PT), Activated Partial Thromboplastin Time (APTT), Thrombin Time (TT), Fibrinogen level and D-Dimer test, results on all specimens received before 2.00 p.m. will be ready by 5.00 p.m. the same day

   b. Euglobulin clot lysis time - please send specimens before 1 p.m. Monday - Friday.

   c. For other tests please arrange with Clinical Pathologist. (See Test List).

2. Notes

   a. Please discuss with pathologists if you are not sure which coagulation tests are required.

   Please indicate if patient is receiving heparin or oral anti-coagulant as this will dictate the choice of coagulation test ie. PT for warfarin and an APTT for heparin control.

   Coagulation studies are exquisitely sensitive to contamination with heparin. Do not send blood from CVP lines etc. unless you are absolutely sure that these have been cleared of heparin.

   b. For patients on Warfarin the International Normalized Ratio (INR) will be given. The following is now widely accepted as the desirable therapeutic range for the INR ranges in various conditions.

INR	Clinical state
2.0-2.5	Prophylaxis of deep vein thrombosis including surgery on high risk patients (2.0-3.0 for hip surgery and fractured femur operations)
2.0-3.0	Treatment of deep vein thrombosis Pulmonary embolism Systemic embolism Prevention of venous thrombo-embolism in myocardial infarction Mitral stenosis with embolism Transient ischaemic attacks Atrial fibrillation
3.0-4.5	Recurrent deep vein thrombosis and pulmonary embolism Arterial disease including myocardial infarction Mechanical prosthetic heart valves

c. Control of Heparin Therapy

The APTT is used but there is no standard reporting system like the INR and there is less agreement about the desirable level of heparinisation.

For patients on continuous IU heparin the aim should be to keep the APTT between 45 and 90 sec (equivalent to a plasma heparin level of approximately 0.2-0.4 IU/ml).

Small dose, prophylactic, subcutaneous heparin is usually given without laboratory control but if unexpected bleeding occurs overdosage should be suspected and the APTT checked.

BONE MARROW EXAMINATION - Pale yellow haematology forms

1. Marrow smears for comment/special stains

   a. At least 4 smears, 2 ml EDTA marrow blood and either 2 ml EDTA blood or CBC number within last 2 days from the patient must be quoted. The smears should be transported in a closed plastic container available from the lab. to avoid dissemination of potential pathogens.

      During summer when there is high humidity, smears must be air dried at the bedside and then transferred to the laboratory in the closed plastic container ensuring it is airtight to prevent water condensation on the slides. Water condensation will lyse the cells and render the smears uninterpretable.

   b. Send preferably to arrive at laboratory before 2.00 p.m. on weekdays and 11.00 a.m. at weekends. Please notify the pathologist of late specimens.

      Please provide full haematological data, clinical information, and previous marrow numbers if applicable.

2. Marrow clot sections and trephine biopsies

   a. Fix these in special marrow fixative obtainable from the Histopathology Laboratory (Ext. 2196), or in buffered formalin which is less satisfactory.

   b. These should be sent directly to the Histopathology Section (1/F), with a tissue request form.

   c. Accompanying marrow smears should be dealt with as in (1) above.

      Full haematological data, and previous pathology numbers must be supplied.

CYTOCHEMISTRY & IMMUNOCYTOCHEMISTRY - Pink haematology forms

1. Peripheral blood or marrow smears for cytochemical and immunocytochemical studies

   a. 1-2ml EDTA marrow blood is required. If there is a dry tap, send 10 ml freshly drawn FDTA blood and imprints from trephine, please discuss with clinical pathologist.

   b. Send the samples immediately after collection before 2.00 p.m. on weekdays and before 11.00 a.m. on Saturdays.

   Full haematological data must be supplied.

2. Neutrophil Alkaline Phosphatase Scores

   a. Do not send EDTA blood, but only a request form to the laboratory before 10.30 a.m., Monday - Friday.

   b. A technician will do a finger prick on the patient in the ward.

   c. Please indicate which other patient in the same ward could be used as a normal control.

IMMUNOHAEMATOLOGY & SEROLOGY - White haematology forms

1. Containers and samples

   a. Use plain tubes. 5 ml clotted blood is sufficient for most tests in this section, with the exception of antibody characterization which requires 10 ml.

   b. For titration of cold antibodies in haemolytic anaemia caused by cold antibody, the blood should be collected into a warmed syringe and container and delivered by special messenger. Arrangement should be made with the laboratory beforehand.

   c. For identification of antibodies in a patient with a positive Direct Coombs test, send 10 ml clotted blood and 5-10 mls EDTA blood for elution of antibodies and absorptions.

2. Timing

   Send before 3.00 p.m. on weekdays and 11.00 a.m. on Saturdays.

3. Special notes for investigation of Haemolytic Disease of Newborn

   a. Samples required are 10ml of clotted blood from mother in plain sterile tube and 2.5ml blood in EDTA from cord blood or from baby (1ml will do).

SPECIAL HAEMATOLOGY INVESTIGATIONS - Yellow Haematology forms

Methaemoglobin level

It is available 24 hr/day. 2.5 ml EDTA blood is required.

THE FOLLOWING TESTS ARE ACCEPTED ONLY IF RECEIVED BEFORE 4 PM ON WEEKDAYS AND BEFORE 11 AM ON SATURDAYS

1. Haemoglobin Studies

   Minimum of 2 x 2.5 ml EDTA blood required.

2. G6PD estimation

   2.5ml EDTA blood required.

3. Haptoglobin and Methaemalbumin

   5 ml of clotted blood is required. Avoid haemolysis as this invalidates the result.

4. Vit. B12 and Folate assays (special forms)

   (a) 10 ml clotted blood and 2.5 ml EDTA blood required. Avoid haemolysis which invalidates the results.

   (b) Send immediately after collection.

   (c) A fasting specimen is preferred.

   (d) A Vit B12 microbiological assay is only performed on samples with a radioassay of value between 150 and 200 ng/L.

THE FOLLOWING TESTS ARE ACCEPTED ONLY IF RECEIVED BY 12.00 P.M. ON WEEKDAYS. THESE TESTS ARE NOT DONE ON SATURDAY EXCEPT BY SPECIAL ARRANGEMENT.

1. Ham's Test and Sucrose Lysis Test

   2.5 ml EDTA blood (for RBC) and 15 ml clotted blood (for serum) are required. The serum must be fresh and not stored since complement activity is required. If there is marked intravascular haemolysis send a sample of clotted blood from a 'normal' person of the same blood group or a Group AB individual, together with 2.5 ml EDTA blood from the patient.

2. Osmotic fragility test (including 24 hours incubated osmotic fragility)

   2.5 ml heparinized blood and 2.5 ml EDTA blood required, from both the patient and a normal control. Sterile heparinized bottles are available from the laboratory.

For other tests not listed above - please contact the clinical pathologist

BODY FLUIDS FOR CELL COUNTS - Blue haematology forms

1. Containers and samples

   a. CSF and other body fluids should be collected into the special 10 ml EDTA bottle provided. If the volume is less than 2.5 ml, then a 2.5 ml EDTA bottle should be used. At least 0.5 ml is required for cell counts.

   b. Keep all bottles upright in the trays provided.

2. Semen analysis

   For sperm counts and morphology, please send to the lab. within 2 hours of collection, and write the time of collection on the form.

3. Timing

   Except for CSF, urine and body fluids will not be accepted after 4.00 p.m. on weekdays and after 12 noon on Saturdays.

URINE FOR HAEMOSIDERIN

Send 20 ml urine before 2.00 p.m. on weekdays and before 12 noon on Saturdays.

HAEMATOLOGY OFF HOURS SERVICE

1. 'Off hours' refers to specimens received during the following period:

   Weekdays: 4.30 p.m. - 9.00 a.m.
   Weekends: 12 noon Saturday - 9.00 a.m. Monday
   All public holidays

2. OUT OF HOURS SERVICE

   1. Please note that the 'off-hour' haematology service is provided by the Main Laboratory in the Block K, LG2 and not by the Haematology Section of the ICU Laboratory.

   2. The 24-hour haematology service includes both technical and medical services and a medical staff can always be reached any time of the day, including holidays, if necessary.

   3. Although the department operates a 24h service, the out of hours work is performed by a limited number of technical staff and these tests are very expensive to perform. Only essential samples and those from new admissions should be sent in during off hour periods.

3. List of tests done available during the 'off-hours'

   1. Full Blood Count
   2. Prothrombin Time
   3. Activated Partial Thromboplastin Time
   4. Thrombin Time
   5. D-Dimer
   6. Fibrinogen level
   7. Direct Coombs Test
   8. CSF cell count
   9. Methaemoglobin level
   10. Malaria parasite detection

   For other tests, please consult the clinical pathologist on call through the laboratory.

4. Reporting of results

Reports are left in the box outside the Haematology Laboratory for collection by Ward staff as soon as the results are available. Please try to collect the reports rather than phone to the laboratory which disturbs the technican on duty.

5. Specimens to be saved for other tests

For tests requested which are not within the 'off-hours' list, the blood sample will be automatically saved till the following day if the following day is a normal working day. A preliminary report will be issued giving part of the results, and the final report will follow.

INTENSIVE CARE UNIT SERVICES - Special white haematology forms

1. Location served restricted to:

   ICU Ward
   Paediatric Unit K8, K9 & K10 wards

2. Test provided

   A. Hb, WBC, Platelet and RBC indices from the blood cell counter
   B. Differential WBC, manual platelet count (failed electronic count)
      PT, APTT, Fibrinogen, TT, D-Dimer

   Results on tests in Group A are generally available within 30 minutes and Group B within 2 hours if required.

   C. Reticulocyte counts, and ESR will be done on a non-urgent basis during normal working hours.

3. Delivery of samples

   During the period 9.00 a.m. - 5.00 p.m. (all days of the year) a haematology technologist is on duty in the ICU Lab. During the period 5.00 p.m. - 9.00 a.m. the service is provided by the staff in the Main Haematology Laboratory in the Block K, LG2. A messenger service is provided by the ICU Lab. between 11.00 p.m. and 7.00 a.m.

OUTPATIENT SERVICES

Hours of operation 9.00 a.m. - 1.00 p.m.
2.00 p.m. - 4.30 p.m.

Outpatients may attend the Haematology Outpatient Laboratory, Room LG221 for capillary blood examination. This service may be extended to in-patients who require frequent blood counts and who can walk to the laboratory.

CAPILLARY BLOOD EXAMINATION FOR IN-PATIENTS

For seriously ill patients who cannot walk to the outpatient laboratory and on whom venepuncture is not practicable, the haematology technician will go to the ward to do a finger-prick. Please fill in a form, send it to the laboratory before 10.30 a.m., and put on the TOP 'for finger-prick'.

DEPARTMENT OF PATHOLOGY

HISTOPATHOLOGY & CYTOLOGY SECTION

1st & 5th floor, New Clinical Pathology Building

USEFUL TELEPHONE NUMBERS :

General Office (autopsy booking and biopsy enquiry)	2123
General Laboratory (biopsy booking and other technical enquiries)	2196
Cytology Laboratory (cytology booking & other technical enquiries)	2180
Frozen Section Laboratory (Block B)	2282
Frozen Section Laboratory (Block K)	73503
Head of Department (Professor F. Ho)	2872
Pathologists (biopsy reporting room)	2124, 2424, 2514
Pathologist for Consultation (autopsy)	radio-pager 354 (or 2123 for radio-pager number)
Pathologist for Consultation (biopsy)	radio-pager 148 (or 2123 for radio-pager number)
Pathologist for Consultation (cytology)	2180
Senior Clinical Pathologists	
Dr. J. Ho	2873
Dr. R.J. Collins	2180
Dr. S.L. Loke	2197
Dr. I. Ng	2864
On Call Pathologist (Frozen Section)	2123 for radio-pager number
office hours	
outside office hours	
First Call	1163388 page 7295
Second Call	1163388 page 7296
Third Call	1163388 page 7297

SECTION ONE

AUTOPSY

1. AUTOPSY BOOKING

Booking by telephone (8192123) may be made any time during office hours. For cases booked after 10:30 a.m., autopsies would normally be performed on the following working day. Once the case is accepted, the date of autopsy would be notified to the doctor making the booking.

In highly infectious cases in which PM is requested, the decision whether a PM will be done and the extent of the examination, will be made at the time of the case discussion in Room 501 (see below).

Similar but more strict requirements apply to AIDS cases.

2. AUTOPSY REQUEST FORM & CONSENT FORM

The Autopsy Request Form is issued to the wards and should be completed in as much detail as possible. (There is a separate yellow request form for coroner's autopsies.) A signed consent form must accompany every request form. Please see the 'Guidelines for obtaining consent for clinical post- mortems' issued by the Medical Superintendent's office for details. Every effort should be made to obtain consent for a full autopsy. (Alternatively, aim at obtaining consent for an extended post-mortem but with a limited body incision rather than consent for examination of only one organ.) The Medical Officer in charge of the case should authorize the autopsy by signing in the appropriate space on the form. Housemen cannot authorize the autopsy.

3. CASE NOTES

All case notes, including relevant X-rays and other records, should be sent by messenger together with the completed Request Form & Consent Form to Rm 118, New Clinical Pathology Building any time after booking, but no later than 10:30 a.m. on the day of autopsy. The case notes, if retained, will be returned by the Pathology Department to the relevant ward on the next working day.

4. DISCUSSION SESSION

The Medical Staff (House-Officer or Medical Officer) requesting the autopsy examination should arrive at Room 255A, Seminar Room, LG2, Block K, by 10:45 a.m. on the day of autopsy, to have a short discussion with the pathologist who will be doing the examination. He should bring the case notes and relevant records with him if they have not been sent by messenger to Room 118 in advance.

5. IDENTIFICATION OF THE BODY AND VIEWING OF RESULTS

After the discussion, the Medical Staff should identify the body to the Mortuary Attendant and to the Pathologist. It is not necessary for the medical staff to be present throughout the course of the autopsy, but they should be obtainable by phone at all times, and must return to view the results at the time previously agreed with the pathologist.

6. SATURDAYS/UNIVERSITY HOLIDAYS

Time limits in paragraphs 1, 3 & 4 are advanced by 30 minutes on Saturdays and University Holidays.

PROCEDURE FOR HIGHLY INFECTIOUS CASES FOR AUTOPSY

1. These cases include those suspected or positive for HBsAg, HIV and slow viruses.

2. No post-mortems are to be performed by Ward Medical Staff. (In fact, Ward Medical Staff should not do any post-mortems unless there is a special agreement with Department of Pathology.)

3. Allow an extra working-day for processing when arranging for booking for post-mortem on such cases, i.e. do not promise relatives that the bodies will be available for the funeral the same day as the post-mortem consent is signed.

4. When consent is signed, the Pathologist in charge of autopsies must be contacted, and his agreement given before the autopsy can be carried out. Please ring the Histopathology General Office (Ext. 2123) to find out which pathologist to contact, or use the relevant radio-pager.

5. Details of the post-mortem booking and examination will then be determined depending on the indications for post-mortem examination.

SECTION TWO

BIOPSY

A. REQUEST FORMS (must be suitably completed)

1. "Name" and "ID Card Number" : These must be clearly filled in for patient identification and filing. The ID number is essential for future retrieval of reports.

2. "Age/Sex" : They are important and relevant to diagnosis.

3. "Previous Biopsy/Cytology Number" : It must be completed. If the number is lost from your record, the approximate year, month, week and date of procedure should be entered.

4. "Hospital Number" and "Reference Number" : These are for record purposes.

5. "Unit", "Ward/Bed Number" : These are for location of patients and to facilitate discussion between the pathologist and clinical staff about the case.

6. "Report To" : Enter the ward, unit or laboratory (whichever is appropriate) clearly because the report will be sent to that location. Requests for an additional report to be sent to a particular concerned party may be requested here.

7. Please indicate "Inpatient/Outpatient/General/Private". This item must be filled in for compilation of accurate of workload statistics. The department reserves the right to reject any specimen in which this information is not available.

8. "Name and Source of Specimen", "Clinical Data", "Operation and Findings", "Clinical Diagnosis" : These are obviously important and must be entered accurately.

Your attention is drawn to the need for the following relevant information :

Nature of Biopsy	Data
Liver	L.F.T.s, drugs, HBsAg status, alpha foetoprotein levels
Bone	X-Ray findings, serum Ca and PO_4, alkaline phosphatase levels
Uterine Curettings	L.M.P., drugs including contraceptives, I.U.C.D.
Bone Marrow	Peripheral blood picture
Muscle	Muscle enzymes, E.M.G. findings, exact site of biopsy and distribution of lesion (use separate sheet provided)
Joint and Synovium	Rheumatoid factor, injections

Naure of biopsy	Data
Renal	Use separate sheet provided
Surgical Specimens	Operative findings and type of operation performed

"Nature and site of specimen" : Nature includes the type of biopsy (eg. excision, incision), surgical specimens, procedures involved in obtaining the specimen (eg. T.U.R., uterine curettage or suction evacuate). Site of specimen - description in words or use a simple diagram.

9. "Sender's Name, Signature and Date" : Without your signature the specimen will not be processed. The sender's name should be written in block letters. (Note that you are the first contact point and a legible name is essential!)

10. **URGENT CASES** : If you label a case as "Urgent", we will endeavour to issue a report as soon as possible; please make sure we are provided with all of the following in legible writing - the name of the person making the request, pager number &/or phone number, and the office to which the report should be sent. You may ring the General Office in Pathology (Ext. 2123) where you will be informed which Pathologist is responsible for the case.

B. SPECIMENS

1. Container : Specimens must be placed in suitable leak-proof containers or bags. PLEASE USE WIDE-MOUTH CONTAINERS FOR ALL SPECIMENS.

2. Amount of fixatives : For ordinary purposes the specimen should be fixed immediately with an adequate amount of 10% buffered formalin (obtainable from the Pharmacy) - this amount should be approximately 10 to 20 times the volume of the specimen. Specimens that have been forced into small bottles are invariably badly fixed, and should be placed in larger containers with adequate fixative.

3. Large specimens : Should be placed in polythene bags of double thickness.

4. Specimens must be kept separate from the request form. Contaminated request forms are a health hazard and will be returned to the sender together with the specimen.

5. Unfixed specimens : For enzyme, histochemical, immuno-fluorescence, molecular or EM study, fresh, unfixed tissue is required. (e.g. lymph node, phaeochromocytomas, soft tissue tumour). In such cases the specimen should be sent immediately to the General Histopathology Laboratory, Clinical Pathology Building, Room 105. Prior arrangement will be necessary for these cases.

   If necessary, fresh specimens may be placed on gauze moistened with normal saline BUT specimens should not be wrapped-up in gauze or be immersed in normal saline.

C. SPECIAL BIOPSIES

1. Special procedures are required for the processing of some biopsies. These include renal biopsy, lymph node biopsies, suction rectal biopsy for Hirschsprung's disease and muscle and nerve biopsies. Please contact the pathologist with special responsibility for these biopsies either directly or through the histopathology office (ext 2123) for advice and arrangements for these cases.

2. Special fixatives : Other than buffered formalin are obtainable from the General Laboratory (Ext. 2196) on request.

3. Special precautions : Special processing may be necessary for certain biopsies, e.g. bone tissue is to be left undecalcified for metabolic disorders (such as renal rickets). Please bring these situations to the attention of the technicians or pathologists before sending the specimen.

4. Consultation : If in doubt about a case, the pathologist for consultation (biopsy) (Ext. 2124/2424/2514) or the Senior Medical Technologist (Ext. 2196) should be consulted.

D. BIOPSY REPORT

1. Enquiries regarding biopsy reports can be made through the General Office (Ext. 2123) but the secretarial and technical staff will not give any report or pathological diagnosis and findings over the phone to avoid legal complications.

2. Clarification : The pathologists should be consulted directly.

3. Filing : A copy of each biopsy report is kept in the General Office for reference. These copies are available for inspection during office hours, but they cannot be taken away.

4. Extra copies : Photocopies of lost reports are only obtainable on request by writing to Dr. J. Ho, Senior Clinical Pathologist.

E. FROZEN SECTIONS

1. Request : A request form must accompany every specimen which should be labelled clearly.

2. Indications : A frozen section will be done only when an intra-operative diagnosis is required to determine the immediate surgical procedure.

3. Contraindications : Frozen section is not and should never be used as a fast alternative to paraffin section for routine surgical specimens. Frozen section should never be requested for specimens with any known infective agent (especially tuberculosis) since this will contaminate the frozen section laboratory equipment and expose the staff to unnecessary health hazard.

4. Routine Service during office hours (9 a.m. - 5 p.m. weekdays and 9 a.m. - 1 p.m. Saturdays except holidays).

   a. Location : The Frozen Section Laboratory is located on the 11th floor, block K (Ext. 73503), (1 p.m. - 2 p.m.: Ext. 2196).

   b. In cases of doubt : Contact the pathologist on biopsy duty (Ext. 2124/2424/2514 or ring up 2123 for radio-pager number).

5. Routine Emergency Service during evenings & holidays

   a. Location : Histopathology Laboratory, 1st floor, New Clinical Pathology Building.

   b. Emergency frozen section service will be provided after office hours. In case an emergency frozen section is needed, the O.T. nurse should dial 1163388 and call pager number 7295 for the pathologist on first call, as well as pager number 7296 for the pathologists on second call. In both instances the nurse should leave the message and replying telephone number.

   c. To minimize delay, the pathologists should be called at least 15 minutes before the specimen is ready for delivery to the frozen section laboratory. As soon as the pathologist arrives in the Histopathology Laboratory, 1st floor, New Clinical Pathology Building, he or she will inform the O.T. staff of his or her arrival and ask for the tissue to be sent by a messenger to the laboratory. Do not send any tissue until the on-call pathologist has arrived.

SECTION THREE

CYTOLOGY

A. SPECIMEN COLLECTION

1. Fill in the cytology request form completely and include all relevant clinical information. The I.D. number is essential for computer recording.

2. The proper collection of material for cytology is of utmost importance. Autolytic changes in cytology material collected from any source (except sputum) must be prevented by the addition of fixative (see below) at the time of collection.

3. Specimens should be sent directly to the Cytology Laboratory (Room 507, New Clinical Pathology Building), or Reception Room, Room 213, LG2, Block K, before 11:00 a.m.

4. If specimens can only be collected late in the day, they should be kept in a refrigerator at 4°C and sent to the laboratory for processing on the next working day.

B. METHODS OF COLLECTION

1. Sputum

   a. First morning deep cough sputum is required. It should be collected before breakfast to avoid contamination with food particles.

   b. Three consecutive morning sputums are required as a routine to ensure the best diagnostic results.

   c. Sputum is collected fresh and should be kept in the refrigerator before it is sent to the laboratory. No fixative is necessary.

   Plastic containers for sputum collection are available from the Cytology Laboratory (New Clinical Pathology Building, Room 507).

2. Body Fluids (pleural, pericardial, peritoneal and cerebrospinal fluids)

   a. Fresh fluid, at least 20-50 ml (except CSF) are required. Volumes of 100 ml are desirable and should be sent if available.

   b. An equal volume of 50% ethyl alcohol should be added to the fluid specimen immediately after collection. The fixed specimen should be kept in the refrigerator before it is sent to the laboratory.

N.B. 50% ethyl alcohol can be obtained by prior order from the pharmacy.

3. Urine

   a. Fresh urine collected at any time is satisfactory for cytology. Except for ureteral-catheter urine which is usually small in amount, at least 50 ml are required.

   b. An equal volume of 50% ethyl alcohol is added to the urine as soon as it is collected and the fixed fluid refrigerated at 4°C or sent immediately to the laboratory.

   c. The specimen should be labelled "voided" or "catheterized" as the cytological features may differ according to the source of the specimen.

   d. For female patients, catheterized urine is preferred to avoid contamination from the genital tract.

   e. When neoplasms of the upper urinary tract are suspected, ureteral-catheter urines are examined and the specimens should be approximately labelled "right" or "left".

4. Gastrointestinal Cytology Materials

   All materials (lavage, aspirate, brushing) obtained from the gastrointestinal tract should be fixed immediately with 95% ethyl alcohol to prevent enzymatic destruction of cells. For detailed methods and procedures please contact Cytology Laboratory.

5. Bronchial Brushing

   a. Direct smears of bronchial brushing should be labelled with the name of the patient on each slide and fixed immediately in 95% ethyl alcohol.

   b. Bronchial aspirate or brush washing fluid should be fixed with equal volume of 50% ethyl alcohol and labelled distinctly as to its source and the site of the specimen.

6. Urgent Cervical Smear

   a. Cervical smear fixed in 95% ethyl alcohol should be sent directly to the Cytology Laboratory (Room 507) if an urgent report is required.

   b. The cytology examination request form should be labelled "urgent". (Please ensure that the case is really urgent!)

   c. No urgent report will be issued on the same day if specimens are sent after 3 p.m.

C. FINE NEEDLE ASPIRATION (FNA) SERVICE

Aspiration cytology sessions for in and out patients are carried out on Tuesdays commencing at 10:00 a.m. and Fridays commencing at 9:30 a.m. All bookings, including those for inpatients, C-T Scan, X-ray or ultrasound guided FNA, should be made to the Pathology General Office (Ext. 2123). If a session is overbooked, the patient will be booked for the next available session. For urgent cases, please ring Ext. 2180.

The procedure will be performed in Room 502A, 5th floor, New Clinical Pathology Building, QMH. Patients should wait on the benches outside until called.
Please note that in cases of presumed open untreated tuberculosis referred for aspiration, the case may, at the discretion of the pathologist, be refused.

For FNA for debilitated or immobile patient, arrangement can be made for pathologists to go to the ward to perform the aspiration.

DEPARTMENT OF MICROBIOLOGY

LG110A, LG1, Block K, Q.M.H. (855xxxx)

	Room No	Extn.	Pager No.
Clinical microbiologist on duty			347
General Office (Clerk & Records)	LG111A	3203	
General Laboratory (Day and Night)	LG110A	3216	
Serology Laboratory	LG110A	3218	
Senior Medical Technologist (Mr K.S. Li)	LG123	3213	
Senior Medical Technologist (Mr H.K. Leung)	LG121	3211	
CLINICAL STAFF:			
2nd & 3rd floor, Clinical Pathology Building (CPB) 4th & 5th floor, University Pathology Building (UPB)		(819xxxx) (819xxxx)	
Hospital Pathology Service			
Clinical Bacteriologist			
Dr R.W.H. Yung	CPB 206	8194192 (direct line)	
Dr K.Y. Yuen	CPB 202	2126	
Dr W.C. Yam	UPB 436	2821	
Senior Clinical Bacteriologist			
Dr W.H. Seto	CPB 208	2515/3269	
Prof. R.B. Heath	UPB 512	2888	
University of Hong Kong			
Lecturer			
Dr W.T. Wong	CPB 204	2191	
Dr Y.M. Ho	CPB 206	2190	
Reader			
Dr P.Y. Chau	CPB 203	2193	
Dr C.H. Teoh-Chan	CPB 205	2192	

SECTION ONE

GENERAL COMMENTS

1. The Clinical Microbiology Laboratory provides a 24-hour service and urgent specimens will be accepted at any time. As a routine, however, specimens should be ready for collection from specimen cupboard by:

   (a) HPS messengers at:
   Mon. - Fri. 8:45 a.m., 9:30 a.m., 10:45 a.m. and 1:15 p.m.
   Sat. 8:45 a.m., 9:30 a.m. and 10:45 a.m.

   (b) Microbiology messenger at:
   Mon.- Fri. 2:00 p.m., 3:00 p.m., 5:00 p.m. and 7:00 p.m.
   Sat. 5:00 p.m. and 7:00 p.m.

2. It is important to collect specimens representative of the infection, e.g. sputum but not saliva, and as early as possible during early onset of the disease and prior to antibiotic therapy.

3. Aseptic technique in specimen collection and handling should always be observed, both as a safety precaution and to avoid contamination with extraneous organisms. Care must also be taken to avoid contaminating the outside of the container with the specimen.

4. A properly-obtained specimen could still be useless, however, if it is not immediately sent to the laboratory for processing, because:

   (a) many pathogens will not survive for long outside the body, e.g. anaerobes and pathogenic Neisseria and

   (b) contaminants will grow and confuse the picture (as in urine).

5. The request form must be filled in as completely as possible to guide laboratory investigation. Precise clinical diagnosis (e.g. "lobar pneumonia" preferred to "chest infection"), clinical history and information on recent antibiotic administration will aid the laboratory in the interpretation of results and in the detection of uncommon pathogens that are not routinely looked for.

6. Do not use containers with Microbiology label for any other purpose.

7. Please consult the clinical microbiologist in-charge on special request and special cases of unusual interest or urgency. In emergency cases, e.g. cholera, diphtheria, special microbiological examinations may be arranged by telephone with microbiologist on duty.

GUIDELINES FOR MICROBIOLOGICAL SPECIMENS THAT NEED IMMEDIATE ATTENTION

1. Certain category of specimens may require immediate attention due to the urgency of the clinical situation or the fastidious nature of the organisms involved. These specimens should be sent to the laboratory immediately. They include:-

    a. CSF from patients with suspected CNS infections.

    b. Other sterile body fluids:- pleural fluids,
    joint fluids,
    peritioneal fluids
    N.B.: intravenous infusate and dialysis fluids are not included in this category.

    c. Immediate Gram smear - only when the results are relevant for antibiotic treatment - e.g. pus, sputum, etc.

    d. Stool for amoebic trophozoites (not cyst).

    e. Biopsy material that require anaerobic culture.

2. It would be ideal wherever possible to send these specimens during normal office hours (9:00 a.m. to 5:00 p.m.). Specimens may be brought directly to our laboratory on the LG1 floor of Block K, Q.M.H. (Room LG110A).

3. From 5:00 p.m. to 11:00 p.m.:
two technicians are available in the laboratory. That may first be contacted by telephone 8553216 and the specimens may be brought directly to the laboratory.

4. From 11:00 p.m. to 9:00 a.m.:
the technical staff can be contacted via the laboratory telephone 8553216. Telephone contact must first be made with the staff before the specimen is delivered to the laboratory.

5. All other specimens not included in the above category should be sent through the normal channels. Any specimens that will be left in the wards for more than 2 hours (especially urine) should be refrigerated at 4°C. Blood culture broth however may be left at room temperature.

6. The microbiologist on duty can be contacted during office hours by the beeper no. 347. After office hours, he may be contacted via the technician on duty.

If further clarifications on the above guidelines are needed, they may be directed to Dr W.H. Seto, Senior Clinical Bacteriologist, telephone 8192515/Dr W.H. Yung, Clinical Bacteriologist, telephone 8194192/Dr K.Y. Yuen, Clinical Bacteriologist, telephone 8192126.

SECTION TWO

COLLECTION OF SPECIMENS

Specimen	Technique	Remarks
Blood	1. Clean venipuncture site with iodine and alcohol. 2. Withdraw 10ml blood (1-3ml in infants). 3. Change needle on syringe. 4. Distribute blood equally into aerobic and anaerobic culture media. 5. Shake bottles gently to prevent clotting.	1. Blood culture broth may be left at room temperature. 2. Do not refrigerate. Multiple samples for PUO. Obtain specimen during high fever and onset of disease. 3. Smaller bottles are provided for pediatric patients.
Biopsy	Place biopsy in sterile container and send immediately.	Do not immerse into fixative.
Bile	1. Aspirate with syringe during surgery or from post-operative drainage or from duodenum via nasogastric tube. 2. From T-tube drainage, withdraw fluid proximal to reservoir.	Discard first ml. from post-operative drainage which often contains contaminants.
Body fluids/ aspirates (Pleural, peritoneal, synovial, etc.)	1. Aspirate with syringe, avoiding air bubble. 2. Cap needle with sterile rubber cap. Send to laboratory immediately.	Immediate delivery to laboratory. Do not obtain specimen from reservoi Fluid obtained from any collecting ba or tank will not be suitable for culture.
Bone marrow	1. Technique is as described under blood culture except special bottles for bone marrow aspirates are provided by the laboratory. 2. If anaerobes are suspected, some of the aspirate should be delivered to a pediatric anaerobic blood culture broth or contact the microbiologist for immediate anaerobic culture of the aspirate.	

Specimen	Technique	Remarks
Catheter tip	Intravascular catheter should be removed from the patient aseptically, cut the tip off with a sterile scissors, and place it in a sterile container.	Urinary catheter tip is not suitable for culture due to inevitable contamination.
CSF	Lumbar puncture.	Aseptic technique. Immediate delivery. Do not refrigerate (N. meningitiditis is sensitive to cold).
Ear discharge	1. Collect discharge in sterile container; OR 2. Swab discharge and send.	Cleanse external ear canal with antiseptic first. Discharge preferred to swab.
Eye discharge	As for ear discharge; OR Direct plating on agar medium	Avoid eyelids/eyelashes. Indicate suspected causes: gonococcus, fungal etc.
Endocervical swab, urethral discharge	1. Send discharge or swab to laboratory immediately. 2. Trichomonas: swab should be placed in trichomonas medium (T/M medium) provided by the laboratory.	Endocervical swab should be obtained with the help of a speculum to avoid contact with the vaginal wall. Indicate suspected diagnosis: e.g. gonorrhoea.
Nasal swab	Swab anterior nares of both nostrils with one "Transtube". Wet swab before taking specimen.	Routine survey of staff or patients for carriers is not recommended except during an outbreak.
Rectal swab	1. For enteric pathogens: swab should be faecally stained. 2. For gonococcus: swab should not be faecally stained.	Stool is always preferable to a swab for enteric pathogens.
Stool	Select blood or mucous portion if present with a wooden applicator for culture. For amoebic trophozite, specimens must be delivered to the laboratory immediately.	Avoid contamination with urine, antiseptics, water or lubricants.

Specimen	Technique	Remarks
Serum (for serology, antibiotic & bactericidal assay)	Withdraw 3 - 5 ml blood by venipuncture (clotted blood)	Contact laboratory staff regarding bactericidal assay. Sterile container must be used for this purpose.
Skin swab/ scrapping	Use moistened swab or send skin scrappings.	Scrappings for suspected fungal infection.
Sputum	Ensure patient cough deeply to produce proper specimen, which is more likely to be obtained in the morning.	Do not send saliva. If necessary, seek the help of chest physiotherapist to obain sputum specimen.
Bronchial brushing	Use double-sheathed tubing for sampling.	
Throat swab	With help of tongue depressor, swab pharynx, tonsillar fossae, and areas of exudating or membrane formation.	Do not touch tongue or oral mucosa. (Indicate presence of membrane if any).
Urine	MSU 1. Cleanse external genitalis with soap and water. 2. Collect 10 - 50 ml. CSU Aseptic aspiration by sterile syringe and needle at the catheter junction or aspiration port. Sterile urine This may be obtained by suprapublic tap; aspiration of the urinary tract during surgery or by single straight catheterization (urine from indwelling catheter should be sent as CSU).	1. It is best to send specimen to laboratory immediately. In case of unavoidable delay, refrigerate specimen at 4°C. 2. For AFB, send the whole first-voided morning urine for 3 consecutive days (kept refrigerated). A larger container for this purpose is provided).

Specimen	Technique	Remarks
Wound/Pus	1. Swab deeply with "Transtube", avoiding contamintion with superficial skin organisms. 2. For anaerobic culture, the "Transtube" should be used. 3. Preferably, aspirate with syringe, remove air-bubbles, cap needle and send syringe to laboratory immedately.	Information on site of wound is helpful.
For isolation of Bordetella pertussis (Whooping cough)		
Pernasal swab	Pass the pernasal swab along the floor of one nostril to the far end until it hits the nasopharynx.	Special swab made with fine and fairly flexible wire is available on request from the Department of Microbiology.

INFECTION CONTROL UNIT

C7, 7th floor, Queen Mary Hospital

STAFF	Extn.	Pager No.
Infection Control Officer (ICO)		
Dr W.H. Seto	3269	352
Infection Control Nurse (ICN):		
Patricia T.Y. Ching, NO II	3553	362
Julia P.M. Fung, NO II	3553	362

Function

To aid all hospital personnel in preventing, identifying, and controlling hospital acquired infection.

Role

- To identify outbreaks.
- Advice on disinfectant usage.
- Advice on Isolation Precaution Guidelines.
- Resource information related to Hospital Infection Control.
- To collect hospital epidermiological data including Notifiable Disease Data.

To assist report on Notifiable Diseases

Please report all Notifiable Diseases:

1. To department of health by Ward Houseman or Medical Officer with Form 2 - MD 1s - for Notifiable disease and MD 1A for T.B. cases.
2. To ICN at K1 Rm. 115A, by Ward Nurse in-charge with 'Notification of Infectious Diseases - QMH' (ICF 2).

Medical & Health Department

List of Notifiable Diseases

1. Cholera
2. Plaque
3. Small pox
4. Yellow fever
5. Amoebiasis
6. Bacillary dysentery
7. Cerebrospinal meningitis (Meningococcus infections)
8. chicken pox
9. diphtheria
10. Enteric fever (Typhoid)
11. Food poisoning
12. Leprosy
13. Malaria
14. Measles
15. Ophthalmia neonatorium (GC in eye)
16. Poliomyelitis
17. Puerperal fever
18. Rabies
19. Relapsing fever
20. Scarlet fever
21. T.B.
22. Typhus
23. Viral hepatitis
24. Whooping cough
25. Tetanus
26. Tetanus neonatorium

Procedure of Reporting Sharps Injury in QMH

Accidental Exposure

1. Staff pricked by contaminated sharps.

2. Report to NO or Ward I/C.

3. Attend A & E Dept., QMH to complete incident report form.

4. Send blood specimen of involved patient to Virology Dept. for HBsAg & AntiHBs test as soon as possible, and specify on request form as follows:

   a. Label 'URGENT REQUEST'.

   b. Report to A & E Dept., QMH (Sharps Injury).

   c. Include 'Name of injured staff'.

5. Send blood specimen of injured staff through A & E Dept. for HBsAg & AntiHBs test, specify on request form as below:

   a. Label 'URGENT REQUEST'.

   b. Report to A & E Dept., QMH (Sharps Injury).

   c. Include 'Name & Hosp. No. of involved patient.

6. Further management will be carried out according to the result of the blood assay by the A & E Dept., QMH.

N.B. Any injured medical staff who does not attend A & E Dept. must send blood for HBsAg & AntiHBs test as instructed in item 4 & 5 and inform I.C.N. by Ext. 3553 or Page 362 within office hour.

Infection Control Guideline available for reference

1. Notification of Infection Diseases, QMH - 1986.

2. Disinfectant Guideline, QMH - 1987.

3. Care of Blood Warmer 1988.

4. Infection Control Guideline - Urinary Catheter, QMH - 1989.

5. Guidelines on Control of Chickenpox & Herpes Zoster in QMH - 1989.

6. Guideline for Isolation Precaution for AIDS in QMH - 1990.

7. Guideline for Prevention of Intravenous Therapy-related Infection for Central Lines and Peripheral Line including Heparin Lock QMH - 1991.

8. Precautions of Reporting Sharps injury in QMH - 1992.

9. Isolation Precaution Guidelines QMH - 1991.

MANUAL FOR CLINICAL STAFF

(1992)

DIAGNOSTIC RADIOLOGY DIVISION

INSTITUTE OF RADIOLOGY AND ONCOLOGY

QUEEN MARY HOSPITAL

CONTENTS

GENERAL INFORMATION ON DIAGNOSTIC RADIOLOGY DEPARTMENT OF QUEEN MARY HOSPITAL

(I) Main Department (Ist floor of B-Block - Main Building)

Room 1	General and fluoroscopy room : retrograde pyelogram, percutaneous antegrade pyelogram, myelogram, percutaneous transhepatic cholangiogram (PTC) and biliary drainage, removal of retained biliary stone via T-tube tract, percutaneous biopsy under fluoroscopy.
Room 2	Intravenous urogram, hysterosalpingogram and lymphogram.
Room 3	Fluoroscopy room : barium swallow and meal, barium enema, myelogram, voiding cystogram, phlebogram, screening of diaphragm, retrograde cholangiogram, retrograde pyelogram and sinogram, etc.
Room 4	General radiography.
Room 5	Tomogram, special skull views, oral cholecystogram.
Room 6	Angiogram, interventional radiology.
Room 7	General radiography.
CT Suite	Computed Tomography.

(II) K-Block 3rd floor (K3)

Room 1	Digital Subtraction Angiogram (DSA)
Room 5	Ultrasonography
Room 6	Mammogram
Room 7	Fluoroscopy

(III) A&E X-ray Unit : Adjacent to A&E Department (J Block)

(IV) Nuclear Medicine Section (K 3 and ground floor of Professorial Block)

Radionuclide organ imaging.

* Please refer to the section on Nuclear Medicine in this manual.

USEFUL TELEPHONE NUMBERS

		Ext.
Consultant in Radiology i/c	Dr F L Chan	2315
Consultant Radiologists	Dr L Leong	2317
	Dr W K Tso	2640
	Dr M T Chau	7-3275
Senior Medical Officers		
	Dr L Ho)	2465
	Dr K O Mak)	
	Dr K S Tai	7-3278
	Dr C W Lai	7-3279
Radiologists		2316/2641
B-Block		
Senior Radiographers	Mr S T Wong/Y Tai	2318
	Mr B K Lee (CT)	2639
General Office & Enquiries		2319
X-ray Room 1		2321
X-ray Room 2		2646
X-ray Room 3		2322
X-ray Room 4		2323
X-ray Room 5		2324
X-ray Room 6		2615
X-ray Room 7		2644
CT Control Room		2643
K-Block		
Senior Radiographer	Mr H S Lee	7-3281
General Office & Enquiries	-	7-3300
X-ray Room 1		7-3287
X-ray Room 5 (Ultrasonography)		7-3292
X-ray Room 6 (Mammography)		7-3289
X-ray Room 7 (Fluoroscopy)		7-3294
A&E Dept. X-ray Room	-	7-3001/2
A&E Dept. X-ray Office	-	7-3005

Nuclear Medicine Section

Consultant in Nuclear Medicine	Dr H Yeung	7-3371
Senior Radiographer	Mr W L Lo	7-3329
Nuclear Medicine Laboratory	Appointment & Preparations	2216
	Reports & Enquiries	2319
K3 SPECT Room		7-3291

COMPLETION OF X-RAY REQUEST FORMS

General Ward Patients : White Forms for conventional radiography, green forms for ultrasonography and orange forms for CT.

Private Ward Patients : Pink Forms

Please put patient's sticker-label over the designated space on left upper corner of request form; or enter :

1. Name of Patient — must be in BLOCK LETTER

2. Age of Patient — must be specified (Ad. for adult is not acceptable). For neonates and infants, specify age in months/days on day of request, not day of admission.

3. H.K.I.D. Number — H.K.I.D. Number is used as the medium for the patient indexing system and also serves as a means of identity. Therefore it is **Imperative to quote the H.K.I.D.** or the equivalent. For adult patients who do not have H.K.I.D., Travelling document or Paper of Identity will serve the purpose. For patients under the age of 11, quote the H.K.I.D. number of his mother; if not available, quote that of his father.

4. Hospital or OPD No. — should be entered for accounting purposes.

5. MIN No. — The MIN is an examination number given to a patient by the Diagnostic Radiology Unit (DRU), QMH. It features the following particulars :

   (a) Each patient is issued one MIN. The same number is used throughout Block B, J & K.

   (b) The same number is used for all radiological, computed tomography and ultrasound examinations;

   (c) The same number is used in the subsequent years unless there is an interruption of visits to the DRUs, QMH for over 5 years.

(d) Indexing of patients is by **Hong Kong Identity Card** number or the equivalent.

(e) MIN is a 6-digit number, it carries the prefix **"M"** which signifies films of **QMH** e.g. **M99-99-99**.

(f) In order that all previous patient records, and films can be centralized and retrieved easily, one patient should never own more than **one MIN**

(g) It is **Imperative to quote the previous MIN** if a patient has one.

(h) If record of the previous MIN has been lost, inform the DRU, it can be traced back through the **Indexing** system.

6. Clinical/Progress Data — must be reasonably detailed and relevant to the examination requested, e.g. urea level in IVU, alk. phospatase and bilirubin level, etc. When gastrectomy has been done, please write that down on the request form for a barium meal. For ERCP or PTC please state whether cholecystectomy has been done. Any request for an examination without adequate indications may be rejected. Provisional diagnosis should be provided. Results of Australian Antigen must be available on a request for elective angiogram or interventional radiology.

7. Biohazard — A.I.D.S. patients and high risk patient groups for A.I.D.S. such as drug addicts, haemophilic patients and patients on haemodialysis must be clearly specified in BLOCK LETTERS.

8. The 'Urgent' Block — should only be ticked where an immediate x-ray is necessary to decide urgent treatment of the patient, and not just for the sake of 'grand rounds' or ward administrative convenience.

9. The 'Portable' Block — is reserved for examination of patients who are absolutely unsuitable to be transported to the x-ray department. Please note that result of portable examination by low-power x-ray

		machine is usually poor. Whenever possible, patient should be radiographed in the main X-ray Department. Never tick the portable block just for the convenience of ward administration (e.g. lack of menial staff).
10.	The 'Pregnancy' Block	Indication of whether the female patient in reproductive age group is pregnant should be clearly written down.
11.	The 'Allergy' Block	see p.
12.	Examination Requested	special x-ray investigations, only <u>one</u> type should be requested on each form. Do not request all special examinations at one sitting, e.g. IVU, Barium Meal, Barium Enema, angiogram, etc. as all these examinations may crash in appointment and residual barium may force postponement of an angiogram examination. Requests for unnecessary investigations prolong the waiting lists, such that patients who really need them have to wait unduly long. Do suggested by radiologists.
13.	Doctor's Signature	request forms must be properly signed with <u>initials and surnames given in block letters</u> in the parenthesis. Forms not signed or without initials plus surname will be returned to head of respective unit afterwards. Note medicolegal responsibility of your signature. Requests by Assistant Intern (A.I.) are <u>not</u> entertained.

Some hints on special x-ray investigations :

(A) G.I. Study	Request barium swallow if you suspect lesion in oesophagus causing dysphagia or bleeding due to varices. Please note that we use different types of barium for swallow, meal and follow through examinations, depending on the special problem to be solved. Never form the notion of requesting swallow, meal and follow through routinely just to avoid missing say a source of gastrointestinal bleeding, despite a typical history of ulcer pain.
(B) Oral Cholecystogram	Request this if gallstone or gall bladder lesion is suspected. However alternative non-invasive method like US should be considered first.
(C) I.V.U.	When urea is elevated, request high dose urogram +/- nephrotomogram and <u>never</u> dehydrate these patients before examination. Dehydration should also be avoided in patients with myelomatosis, diabetes mellitus, etc.
(D) Bone Films	No routine skeletal survey please, because of irradiation hazard to patient. For patients with fractured ribs, request oblique view rather than lateral view. For suspected fracture of skull, please indicate site on request form diagrammatically.

<u>Important Remarks</u>

(1) Forms not properly completed may be rejected.

(2) Please avoid unconventional abbreviation.

(3) <u>Do not write</u> on the back of request forms because it is the place reserved for our duplicate report.

(4) Do not send double request forms for same examination of a patient.

(5) All emergency request for special imaging procedures must be arranged with medical officers in the x-ray Department and clinicians should be present during the procedure.

ROUTINE PROCEDURES IN THE X-RAY DEPARTMENT

1. Enquiries and appointments :

   (a) Special examinations - appointment slips with appropriate instructions will be sent to wards. These appointments are not transferable and the clerk i/c (Ext 2319) or senior radiographer (Ext 2318) should be informed of any cancellations. For requests of urgent examinations, please come down to the X-ray Department and contact the radiologists responsible for that examination in that session. For angiography/intervention radiology appointments or cancellations, please contact Dr L Ho (Ext 2465). Observe the instructions on appointment sheet with full explanation to the patient the purpose and procedure of such an examination. Please note that punctuality is kept strictly. Patients must be accompanied by all old films and clinical notes.

   (b) General examination - In-patients : by appointments. The QMH X-ray Department does not normally cater for out-patients except follow-up ward cases. Out-patients must be warned of possible waiting at X-ray department even for plain films. Try to utilize the day time for x-ray examinations as we only have one radiographer at night to answer ward call. Ward patients sent to A & E X-ray section after 5 p.m. are strictly confined to those who need urgent attention. All cold clinical cases should have their x-ray examinations taken in the main department the next day.

   (c) Alteration of appointment by yourself is strictly forbidden.

2. Processing of X-ray films - mostly by automatic processors.

3. Clerical work to sort out and file the films in order before release.

4. Reporting by radiologists :

   (a) Films are not processed for reporting unless all old films are available.

   (b) Plain films taken in the morning and before 3:30 p.m. in the afternoon are reported on the same day by radiologists.

   (c) Plain films taken after 3:30 p.m. and emergency films taken in the A & E Department after 5:00 p.m. until 9:00 a.m. the next morning can be loaned out. We are aware that you are often pressed to have all x-ray films ready before ward round. This can be possible by sending your requests for x-ray examination earlier in the day and collect your x-ray reports and films before 5:30 p.m.

(d) No films of a special examination can be taken out of the X-ray Department without reporting unless special permission from the radiologist doing that special examination has been obtained. Normally a report for the special examination will be issued within 24 - 48 hours.

(e) Progress films etc., when a report is not required, can be obtained if 'Report not required' is marked on the request form.

(f) Films of private or non-government institutes/hospitals/clinics will not be reported on normally.

5. Films and reports :

(a) Reports are sent to the wards as soon as possible.

(b) Films are obtainable when a loan form is signed by a medical doctor. These must be returned to the Department after patient is discharged or deceased. Films can be loaned out from the department from 8:30 a.m. until 5:30 p.m. on weekdays and before l:00 p.m. on Saturdays.

(c) If films and reports are needed urgently, the clerk i/c should be approached. Doctors are not allowed to search the films and records themselves in them X-ray department.

GUIDELINES ON CONTRAST RADIOLOGIC STUDIES

1. If you do not know, always seek a radiologist's opinion.

2. For radiologic studies requiring IV contrast, please fill in the sheet on information about patient's allergy state and decision to give steroid cover. This sheet accompanying the appointment slip should be completed before patient attends the investigation.

3. For patients with a positive allergic history, consent form should be obtained.

4. I.V.U.

(a) Dehydration should be avoided in uraemic and diabetic patients and those with myelomatosis as well as in infancy.

(b) Request HIGH Dose Urogram + /- nephrotomogram if uraemic.

5. It is better to request a radiologist to perform special examinations, e.g. searching for leakage, checking position of gastrostomy or T-tubes, than to give contrast yourself in the wards which will sometimes cause accidents like extensive pulmonary oedema from aspiration of gastrografin etc. Radiologists will try their very best to help if you can arrange with them IN PERSON.

6. Myelogram

Myelogram study is performed by radiologists in X-ray Department, Queen Mary Hospital.

Precaution should be made in patients with epileptic fits and on phenothiazides groups of drugs which must be mentioned in the request form.

Do not just book myelogram for CSF analysis because you expect the lumbar puncture difficult to perform.

For myelograms to be followed by CT-Myelogram (CTM), please send both request forms together so that appropriate appointments can be arranged. CTM without the need of a preceding myelogram requires the contrast to be given by lumbar puncture by doctors in the wards.

For urgent or early appointments, direct liaison with the radiologist on duty (9am to 8pm on normal working days, 10am to 6pm on Sundays/public holidays) is necessary. Outside these hours, the on-call radiographer will deal with the urgent cases under supervision of the radiologist-on-call. While urgent service is available 24 hours a day, care must be taken not to strain or abuse the system.

Urgent investigation is indicated in acute spinal cord syndrome. In cases of cord compression, delay of even an hour or two will seriously compromise recovery resulting in permanent paraplegia or tetreplegia. Once the neurologists or neurosurgeon has requested the investigation, it must be handled as an emergency.

While it is not possible to indicate exactly the level of spinal cord lesion in every case, the levels to be imaged should be specified as far as possible. For example, if the clinical signs suggest a thoracic cord lesion, the thoracic +/- cervical regions should be imaged and the lumbar region can be skipped.

CTM is helpful in showing the cross-sectional image, in visualizing the regions beyond myelographic blockage and structures not clearly shown by the conventional myelogram. Whenever logistically feasible, CTM should be performed for the affected segment or indistinct regions, and also as single slice for each vertebral/intervertebral level beyond myelographic blockage. There is no point in doing CTM in a patient with unequivocally normal myelographic findings.

If CSF is required for analysis (cell counts, protein +/- glucose only), please discuss with the radiologist beforehand. The radiologist can drain a maximum of 2ml CSF if he/she deems fit. (Please note that subdural contrast injection or poor film quality may result from excessive CSF drainage.) The house-officer should divide the CSF into two portions (0.5ml for cell counts, and 1.5ml for protein +/- glucose), and label clearly on the respective request forms - "Pre-myelogram specimen - limited amount". The specimens are to be sent off by the ward staff.

7. GI Examinations : There are 2 types of contrast media

   (a) Water soluble.

   (b) Barium suspension.

   Gastrograffin or 'Oral hypaque' is not the only water soluble contrast media.

   Never use gastrograffin for patients suspected of broncho-esophageal fistula, esophageal obstruction and tendency to aspirate. It will cause pulmonary oedema and chemical pneumonitis because it is very hypertonic. Please consult a radiologist for the ideal contrast to be used.

   Injection of contrast via drainage tube, T-tube etc is better done by radiologists under screening than blindly in the wards. The choice of contrast depends on the sites of interest and places of drainage tube. Ask radiologist for an opinion when in doubt.

   Sites and nature of GI obstruction when present in small bowel is not well-visualized by gastrograffin as it is diluted by water because of its hyperosmolarity. For defining sites and nature of obstruction, rule out large bowel obstruction by barium enema first. Thin barium can then be used to define a distal small bowel obstruction.

   Gastrograffin is used for leakage only.

   Hypaque, Conray and Urograffin are water-soluble contrast, normally not suitable for GI study.

   Avoid a barium enema study within 2 weeks after Sigmoidoscopic biopsy.

8. For post-operative studies, dates and types of operation done must be noted on the request form, preferably with a diagrammatic drawing.

9. If a patient has an operation while waiting for the appointed time for a special radiologic examination, and the operation render that examination unnecessarily or dangerously, always remember to cancel the appointment.

GUIDELINES ON INTERVENTIONAL RADIOLOGY

1. All interventional radiological bookings must be sent in person to the radiologists doing IR work (Dr W K Tso or Dr L Ho) in the X-ray Department. Irrelevant bookings will not be accepted. Always seek a radiologist's opinion, if you do not know.

2. Every interventional study should have a full informed consent from the patient. Therefore one should explain to the patient about the indications, nature and possible complications arising from the interventional procedure.

3. Obtain detail allergic history and give necessary steroid cover, just like doing other contrast radiological examination, before interventional procedure.

4. Obtain a full bleeding profile and parameter from the patient, and correct any bleeding tendency before requesting any interventional procedure.

5. An IV line should be put up before sending the patient to the X-ray Department.

6. The patient should fast for several hours before any interventional procedure.

7. Detailed clinical history, physical findings, biochemical and pathological data, operative procedure and results, previous radiological examinations and numbers must be written down neatly and legibly on the request form (white forms for general ward patients, pink forms for private ward patients.

8. Please observe the post-operative instructions after an interventional procedure.

REQUESTS FOR ULTRASOUND IMAGING

1. Fill in the green ultrasound request form for general ward patients and pink forms for private patients.

2. Please send patients down at appointment time and be punctual.

3. For obstetric cases encourage patient to drink water but warn them against voiding - we need a full bladder, especially in early pregnancy.

4. For examination of GI tract - fast patient after mid-night.

5. Please avoid request for ultrasound examination after recent abdominal operation while there are still dressings and abdominal drains.

6. For urgent cases and when in doubt, please contact Radiologists **in person**.

7. Please inform the radiographer i/c immediately at Ext 7-3292 for any cancellation.

8. Doctor's signature should be accompanied by either block letters or Chinese characters.

REQUEST FOR COMPUTED TOMOGRAPHY SCANNING

(A) Normal (Elective) Bookings

The following steps have to be satisfied before any proper CT appointment is used :

1. All CT bookings must be sent in person to the radiologists taking care of CT in the Diagnostic Radiology Department. Irrelevant bookings will not be accepted.

2. Detailed clinical history, physical findings, biochemical and pathological data, operative procedure and results, previous radiological examinations and numbers, and ID number must be written down neatly and legibly on the CT request form.

3. Names of the house officer/medical officer requesting the CT appointment have to be written legibly beside the signature in either English or Chinese, for the sake of easy communication and remarks.

(B) Urgent Bookings

Important points to be noted for patients requiring urgent (same day) CT examination :

1. All urgent CT examinations have to be booked in person with the radiologist on duty at the CT room for that day.

2. The house officer/medical officer should stay in the CT control room when patient is having the urgent CT examination, for the sake of patient care.

3. No urgent requests would be considered on out-patient basis.

4. Appointments will not be issued to these cases. They will be put on a "standby list", the order being determined by the radiologist according to the clinical urgency of the cases.

5. Patients on "standby list" will be investigated when the CT equipment is available in between normal bookings. The respective ward will be informed by phone. Patients should arrive at the CT room within 10 minutes when they are called for.

(C) "Early" Bookings

For CT scanning required for early management of patients, but not qualified to be urgent, please contact Dr K S Tai (Ext. 2316).

(D) Other Remarks

1. All cancellations must be reported immediately to the radiologist or radiographer in charge of the CT room (Ext 2643). The corresponding CT scan appointment slip should be sent back to the Diagnostic Radiology Department as soon as possible.

2. There are 2 types of CT Request Forms :

   (a) Orange form for general ward patients.

   (b) Pink form for private ward patients.

3. Please also refer to the guidelines on 'Emergency CT Service' issued by the Medical Superintendent at regular intervals.

MANUAL FOR CLINICAL STAFF

(1992)

NUCLEAR MEDICINE SECTION

INSTITUTE OF RADIOLOGY & ONCOLOGY

QUEEN MARY HOSPITAL

C O N T E N T S

Nuclear Medicine Unit

NUCLEAR MEDICINE

(A) General Information and Telephone Numbers

(1) General Information

(a) Location : QMH Professorial Block - Room G31.
QMH K-Block - Room 343.

(b) Request Form :

3rd Class patient : Yellow Scan Request Form (MD 1506)
1st Class, 2nd Class and Private Outpatient : Pink Scan Request Form (MD 1506A).

(c) Indication :

Only procedure with definite indication should be requested. Request which is deemed not beneficial to patient may not be accepted.

(d) Appointment and Cancellation :

Appointment is not transferrable without our unit's approval. Our General Registry (Ext.2899) should be notified immediately on any change of bed or patient's death. Cancellation should be done 24 hours before appointment.

(e) Female Patient :

Make sure patient is not pregnant, unless benefit of scan outweights potential risk.

(2) Telephone Numbers

	Prof. Blk.	K-Block
Nuclear Medicine Scan Room	2216	3291
General Registry (Enquiry/Appointment/Report)	2899	3329
Consultant in Nuclear Medicine	-	3371
Secretary to Consultant	-	3328
S.M.O./M.O. Office	2590	
Senior Radiographer (NM)	-	3329
Physicist (NM)	2215	

NUCLEAR MEDICINE

(B) Scan Requisition

(1) Fill in Scan Request Form (Yellow/Pink) as described in Section A.

(2) Please note the following important points in filling the Form:

(a) FOR AUDIT PURPOSE, SCAN REQUEST FORM WITHOUT HOSPITAL NUMBER OR OUTPATIENT NUMBER IS INVALID AND WILL BE RETURNED.

(b) NAME OF REQUESTING DOCTOR MUST BE WRITTEN IN BLOCK LETTERS.

(c) Correct Ward/Bed No. is essential for correct delivery of the report.

(d) Relevant clinical information, including operation with dates, should be recorded to facilitate correct scan interpretation.

(e) Patient's telephone number should be provided if possible, as it will be a great asset in arranging an earlier appointment if the patient is going to have the examination done as an outpatient.

(f) LMP must be recorded for female patient.

(3) Scan Request Form should be sent to General Registry, Room 31, Ground Floor, Professorial Block.

(4) Urgent Case : Request Form should be brought to Room 31, Ground Floor, Professorial Block by doctor in person and the case should be discussed with nuclear medicine M.O. on duty.

(5) Scan Appointment Notice will be sent back to the Ward giving the specific time and date of appointment.

(6) Urgent case approved by us will be automatically put on standby list and will be performed as soon as possible.

(7) Inpatient will be given priority over outpatient.

NUCLEAR MEDICINE

(C) Management of Patient having Scintiscan

(1) Please send patient to the Nuclear Medicine Scan Room in Room 31, Ground Floor, Professorial Block or Room 343, K-Block, as directed, and send along with the patient:

(a) Clinical notes
(b) X-ray films

(2) Failure of patient arriving within 15 minutes on call would mean automatic cancelling of the examination.

(3) Paediatric Patient

(a) All children under 10 years old should have an IV drip or heparin block except for milk scan.

(b) Sedation

All children under 4 years old should be sedated (except for milk scan) with the following as (+) unless there is contraindication requiring a substitute:

( ) Give Lytic Cocktail mixture IMI 45 minutes before scan time

Weight in kg	Pethidine 50 mg/ml	Phenergan 25 mg/ml	Largactil 25 mg/ml
4.0 - 9	0.2 ml	0.2 ml	0.2 ml
9.1 - 18	0.5 ml	0.5 ml	0.5 ml
18.1 - 27	0.6 ml	0.6 ml	0.6 ml
27.1 - 36	0.7 ml	0.7 ml	0.7 ml

If Largactil is contraindicated, double the dose of phenergan.

( ) Give Paraldehyde 0.3 ml/kg IMI 30 minutes before scan time.

( ) Give Chloral Hydrate 20 mg/kg p.o., diluted with water, 45 minutes before scan time.

NUCLEAR MEDICINE

(4) Patient Preparation

Any Test : Female patient SHOULD NOT BE PREGNANT, unless benefit of test outweights potential hazard.

( ) Bone Scintiscan

- Encourage fluid intake (1 litre) after injection of radionuclide.
- No Barium Study 72 hours before appointment.
- Must send bone X-ray along.

( ) Brain Scintiscan

- No scalp vein IV drip
- Give 400 mg Potassium Perchlorate orally (2 capsules) 1 hour before appointment.

Children	<1 year	: 100 mg
	1 year - 4 years	: 200 mg
	>4 years	: 400 mg

( ) Gallium Scintiscan

- After injection of gallium, give
  - Dulcolax supp. 1 nocte x 2 days
  - Agarol 15 ml p.o. nocte x 2 days
  - Fleet enema or high bowel cleansing enema 3 hours before time of the scintiscan on day of return i.e. 48 hours after injection of gallium.

( ) Gastro-oesophageal Reflux Study (Milk Scintiscan)

- No sedation.
- No milk feed 4 hours before scintiscan.
- Bring along two bottles of milk.

( ) Hepatobiliary Scintiscan

- Fast overnight or skip one infant milk feed.
  (Except biliary atresia : No milk feeding for 4 hours ONLY)
- Bring along a bottle of milk for infant or a standard fatty meal (1 egg + 6 oz of milk) for adult to scan room.
- IV fluid with 120% of fluid requirement i.e. well hydrated.
  ( ) Phenobarbital 1.25 mg/kg bid for 3 days, commencing 2 days before scintiscan.

NUCLEAR MEDICINE

( ) Liver Scintiscan

- No Barium Study 72 hours before appointment, nor cholangiogram on the same day.
- Please mark outline of liver, spleen, any abdominal mass and costal margin before scintiscan.

( ) Lung Perfusion/Ventilation Scintiscan

- Chest x-ray before scintiscan.

( ) Meckel's Scintiscan, GI Haemorrhage Scintiscan.

- Fast overnight or skip one infant milk feed.
- No aspirin for 2 weeks before appointment.
- No Barium Study 7 days before appointment.

( ) MIBG Scintiscan

- Check patient is not allergic to iodine, give Syrup Potassium Iodide 180 mg p.o. daily x 3 days before appointment and continue for 7 days after the examination.
  children <1 yr. : 60 mg, > 1 year. : 120 mg
- No reserpine 4 days before to 4 days after the examination
- No fasting, well hydrated.
- No IVU on the same day to 4 days after the examination.

( ) Myocardial Perfusion Scintiscan

- Nil by mouth on morning of imaging.
- Off β blocker, vasodilator and calcium antagonist for 48 hours before appointment.

( ) Renal Scintiscan

- No fasting, well hydrated.
- No IVU on the same day.
  ( ) For Hippuran I-131 Study : Check patient is not allergic to iodine, give Syrup Potassium Iodide 180 mg p.o daily x 3 days, first dose given half hour before scan.
  children < 1 year : 60 mg
  > 1 year : 120 mg

( ) Salivary Function Study

- Do <u>not</u> give atropine.
- No breakfast in the morning of the scan.
- Bring along 500 ml of water and a lemon.

NUCLEAR MEDICINE

( ) Thyroid Radioiodine Scintiscan

- Off seafood, iodine drug and antithyroid drug 2 weeks before appointment until examination is finished.

- Off Thyroxine (T4) for 6 weeks, or T3 for 20 days before appointment.

- Avoid Oral Cholecystogram, IVC and IVU 4 weeks before appointment.

- NPO 4 hrs. before to 2 hrs. after the time of appointment of scintiscan on the first date.

( ) Thyroid Technetium Scintiscan

- Off seafood, iodine drug and antithyroid drug 2 weeks before appointment.

Off Thyroxine (T4) for 6 weeks, or T3 for 20 days before appointment.

- Avoid Oral Cholecystogram, IVC and IVU 4 weeks before appointment.

( ) Testicular Scintiscan

- Check patient is not allergic to iodine, give Syrup Potassium Iodide 180 mg 30 minutes before scintiscan.

children < 1 year : 60 mg ; > 1 year : 120 mg

( ) Radionuclide Venogram

- Skin preparation to both feet (can omit shaving).

(5) Nursing Care for Patient

(a) Empty bladder immediately before going to scan room.

(b) Incontinent patient should be catheterized. Infant should have urinary bag.

(c) Encourage patient to empty bladder as often as possible after injection of radionuclide.

(d) Please wear disposable gloves when treating patient's excreta.

(e) Clothing contaminated with urine or faeces should be put in a plastic bag and put aside for 2 days before laundry.

NUCLEAR MEDICINE

(D) List of Nuclear Medicine Procedures Available (as from January 199

CODE	PROCEDURE
	NEUROLOGY
0010	Brain Scintiscan
0020	Cisternography
	CARDIOLOGY
0110	Cardiac Wall Motion & Ejection Fraction Study
0120	Myocardial Infarction Phosphate Scintiscan
0130	Myocardial Perfusion Thallium Scintiscan
0140	First Pass Radionuclide Angiocardiogram
0150	Radionuclide Venogram
0160	Cardiac Shunt Quantitation Study
	ENDOCRINOLOGY
0220	Thyroid Technetium Scintiscan
0260	Thyroid Carcinoma Whole Body Scan
0271	Parathyroid Technetium-Thallium Scintiscan
0280	Adrenal Scintiscan (Seleno-methionine)
0281	Adrenal Scintiscan (MIBG)
0290	Thyroid Radioiodine Scintiscan
	GASTROENTEROLOGY
0310	Hepatobiliary Scintiscan - EHIDA
0320	Gastro-oesophageal Reflux Study
0330	G.I. Haemorrhage Scintiscan
0350	Liver & Spleen Scintiscan (Tin Colloid)
0370	Meckel's Scintiscan
0380	Salivary Gland Scintiscan
0410	Oesophageal Transit Time Study
0420	Gastric Emptying Study

NUCLEAR MEDICINE

CODE	PROCEDURE
	NEPHROLOGY & UROLOGY
0510	Renal (Hippuran) Scintiscan
0520	Renal (DTPA) Scintiscan
0522	Renal (DTPA/LASIX) Scintiscan
0530	Renal Cortical Scintiscan (DMSA)
0550	Testicular Scintiscan
0561	Intravenous Vesico-ureteric Reflux Study (Indirect)
	HAEMATOLOGY
0610	Whole Body Bone Marrow Scintiscan
0620	Blood Volume (Plasma & RBC) Study
	INFECTIOUS DISEASE
0710	Gallium (Abscess) Scintiscan
	ONCOLOGY
0810	Gallium (Tumour) Scintiscan
0841	M.I.B.G. Scintiscan
	PULMONARY MEDICINE
0910	Lung Perfusion Scintiscan
0920	Lung Ventilation Scintiscan (Technegas)
	ORTHOPAEDICS
1010	Bone Scintiscan
1012	Hip Scintiscan (Localized Bone Scintiscan)

N.B. Thyroid Carcinoma Whole Body Scan Thyroid Uptake Study, Perchlorate Discharge test etc. are performed at Radiotherapy Division. Request for these tests should be in the form of a memo and addressed to Consultant in Radiotherapy & Oncology of Radiotherapy Division.

Department of Pathology

Tissue Typing

Room 402 Clinical Pathology Building
Telephone 2600

Senior Hospital Immunologist	Dr. B.R. Hawkins
Medical Technologist	Miss S.C. Cheung

Patients awaiting kidney or bone marrow transplantation

Tissue typing tests are performed by appointment only. Appointments may be made by telephoning the laboratory on extension 2600. Patients and, where necessary their relevant family members will be asked to attend Room 402, Clinical Pathology Building, for blood collection at 9.00 am. Maps are available from the laboratory for patients who are unfamiliar with the location. All necessary blood samples will be collected by staff in the Tissue Typing Laboratory, except in the case of in-patients and infants less than two years of age from whom blood must be collected by ward staff.

Final crossmatch prior to renal transplantation should be performed at least 7 days before the scheduled date of transplant and at least 10 days after the most recent blood transfusion. Bookings for final crossmatches should be made at least 3 weeks before the scheduled date of transplant. Appointments are unlikely to be possible when less than 3 weeks notice is given.

Potential cadaveric kidney donors

During office hours please contact extension 2600 as early as possible. For emergencies occurring outside office hours please contact the duty technologist on 1139922 page 8836. Every effort will be made to provide a service subject to availability of staff. Please note that this number is for emergency use only. 40 ml heparinised blood are required to be collected by ward staff from the potential donor, and a piece of spleen and/or lymph nodes may be requested for collection during the donor nephrectomy. Please note that results will not be available for a minimum of 6 hours after receipt of blood in the laboratory. Results will be telephoned to the requesting clinician as soon as they are available. Repeated telephone requests for progress reports will delay the final result. Please note that some disruption to the routine service may occur following emergency calls.

Tissue Typing for other purposes

There is no routine HLA-typing service for HLA-associated diseases. If HLA-typing is considered relevant please contact extension 2600.

Department of Health, Virus Unit

7th floor, Clinical Pathology Building

Useful telephone numbers :

Office, Clerk & Records	2121
General Laboratory	2119
Senior Medical Technologist	2113
Medical Officer (Dr. K.S. Chan)	2183
Consultant Medical Microbiologist (Dr. W.L. Lim)	2112

SECTION ONE
REQUEST FORMS AND SPECIMENS CONTAINERS

Request form (MD 1293) must be accompanied with labelled specimens for each patient. It must be duly completed in duplicate and signed by the Medical Officer.

Virus transport medium (T/M), containers and request forms are available from the Virus Unit, Clinical Pathology Building, 7th floor.

SECTION TWO
SPECIMENS FOR VIRUS ISOLATION AND DETECTION OF VIRAL ANTIGENS

Collect specimens aseptically as early as possible in the acute phase of the illness.

1. Eye swab, throat swab and nasopharyngeal aspirate

   Swab the patient's eye or throat with sterile cotton swabs. Break off the swab tip into the virus transport medium. For Chlamydia culture, use dacron swab and special Chlam T/M. Please send methanol-fixed smears for direct detection of Chlamydia.

   For the detection of respiratory viruses by immuno-fluorescent technique, nasopharyngeal aspirate should be collected with suitable equipment, e.g. sterile disposable tracheal suction kit with nasal catheter. Send the aspirate directly to the laboratory. Transport medium should be added to it if any delay is likely. A separate Chlam T/M should be used if culture of Chlamydia trachomatis is required on the specimen.

2. Faecal and rectal swab

A piece of faeces weighing about 1-2 g (about the size of the end of a small finger) is placed in virus transport medium (T/M). If a stool specimen cannot be obtained, it may be replaced by a rectal swab, but the chances of isolating virus from swabs are less than from faeces. Break the swab tips into the virus transport medium. For the detection of rotavirus, use special transport medium (marked rota).

3. Spinal fluid

Collect 2-3 ml in a sterile screw-capped bottle.

4. Vesicular fluid and skin lesions

Prick vesicular lesions, collect exudate and cellular material from the base of lesions with cotton swab, and break off swab tips into virus transport medium. In cases of suspected varicella-zoster or smallpox, specimens of vesicular or pustular fluid from 5-6 lesions should be collected in capillary tubes for detection of viral antigens. At crusting stage, crusts should be collected in sterile glass bottles.

N.B.: In case of suspected smallpox, the Virus Unit must be informed prior to sending of specimens.

5. Urine

For detection of cytomegalovirus and rubella virus in congenital infection, at least 2-3 ml of clean-voided specimen should be added to equal volume of transport medium (T/M for rubella and CMV T/M for cytomegalovirus).

6. Blood

For a few viral infections, e.g. arbovirus and arenavirus, the virus may be isolated from blood at acute stage. 5 ml of blood, heparinized or clotted, should be collected in sterile screw-capped bottle. For the detection of hepatitis B antigens, 5 ml clotted blood should be obtained.

7. Autopsy or biopsy specimens

Collect fresh, unfixed tissues from involved sites using separate sterile instruments. Samples should be collected in separate sterile screw-capped bottles.

SECTION THREE

BLOOD SPECIMENS FOR SEROLOGICAL TESTS

Collect the acute-phase blood as soon as possible after onset of the disease and the convalescent specimen 10-14 days later. 5 ml of whole blood should be collected aseptically into a leakage-proof screw-capped container without anticoagulant or preservative. In case of known or suspected HIV infection, put the container in double plastic bags and marked "BLOOD PRECAUTION". Laboratory forms should be placed outside the plastic bags.

Acute and convalescent blood specimens must be examined in parallel in order to demonstrate the appearance or increase of antibody titre during the course of illness, thus serological tests will normally be carried out upon receipt of the second blood specimen. A single specimen of serum for antibody testing is of value in limited circumstances, for instance, to determine immunity (e.g. rubella), to detect the IgM antibody to a particular virus on special request, or in suspected HIV infection.

SECTION FOUR
TRANSPORT AND STORAGE OF SPECIMENS

Specimens should be ready for collection by hospital messengers at 9.10 a.m., 10.00 a.m. and 11.30 a.m. from Monday to Saturday, and 2.30 p.m. from Monday to Friday. Specimens collected later in the day should be delivered by ward staff to the laboratory. As the Virus Unit only operates during normal office hours, specimens collected after 5.00 p.m. and on holidays should be kept at 4-6^{o}C in refrigerator. Please do not store specimens in the freezing compartment of an ordinary refrigerator or a freezer.

Do not hesitate to contact the laboratory for more detailed advice or to discuss problems.

Please remember to :

1. Use appropriate viral transport medium for swabs.

2. Give adequate clinical details including date of onset of illness.

3. Sign the form legibly so that we can contact you, if necessary.

SECTION FIVE
TYPES OF SPECIMEN BY PRINCIPAL BODY SYSTEM INFECTED

System	Specimen required		
	For isolation	For direct examination	For serology
Respiratory	Throat swab, nasopharyngeal aspirate	Nasopharyngeal aspirate	Paired sera
Central nervous system	Blood (for arbovirus isolation) Faeces, CSF, throat swab, rectal swab	Corneal impression smear (for rabies only) Brain biopsy, CSF	Paired sera
Cardiovascular	Faeces	----	Paired sera
Gastro-intestinal tract	Faeces	Faeces	Paired sera
Skin	Macular/papular scrapings, vesicular/pustular fluid, ulcer scrapings, crusts, faeces, throat swab	Vesicular/pustular fluid, ulcer scrapings, crusts	Paired sera
Eye	Conjunctival scrapings or swabs	Conjunctival scrapings as smears on microscope slides	Paired sera
Liver	----	Serum	Serum
Congenital infection	Throat swab, urine, products of conception	----	Paired sera
General : fever of unknown origin	Heparinized blood (arbovirus and arenavirus infections), throat swab, faeces	----	Paired sera